

**A COMPARATIVE STUDY ON FINANCIAL ANALYSIS OF
HYDROPOWER COMPANIES IN NEPAL
(With special reference to Chilime Hydropower Company Ltd, National
Hydropower Company Ltd and Butwal Power Company Ltd)**

A THESIS

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VIVA- VOCE SHEET

We have conducted the Viva- Voce examination of thesis prepared by

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DECLARATION

I hereby, declare that the work reported in this thesis entitled **A Comparative Study on Financial Analysis of Hydropower Companies in Nepal.(With special reference to Chilime Hydropower Compny Ltd., Butwal Power Compny Ltd., and National Hydropower Company Ltd.)** Submitted to the Research Department of Nepal Commerce Campus, Meenbhawan, Faculty of Management, Tribuwan University is my original work reported in the form of partial fulfillment of the requirements for the master of business studies(MBS), under the supervision of Dr. Bihari Binod Pokharel, Associate Professor of Nepal Commerce Campus, Dr. Prakash Neupane , Reader of the Nepal Commerce Campus and Mr. Lekh Nath Bagale, Lecturer of Nepal Commerce Campus, Tribuwan University.

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ABBREVIATIONS

ADB	= Asian Development Bank
BPC	= Butwal Power Company
FY	= Fiscal Year
GWh	= Gigawatt Hour
i.e.	= that is
IPP	= Independent Power Producer
MW	= Megawatt
MWh	= Megawatt Hour
NEA	= Nepal Electricity Authority
NHA	= National Hydropower Association
NHPC	= National Hydropower Company Limited
No.	= Number
TU	= Tribhuvan University

CHAPTER I

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Nepal is a landlocked and developing country of South Asia. More than 80% of the total population depends upon agriculture which contributes 41% of gross domestic product (GDP). The main source of income and main occupation of above 80% population is agriculture. The way of production in agriculture sector is still traditional. The agriculture sector is suffering from lack of technology.

Nepal is endowed with abundant water resources from the availability point of view. Hydropower is considered as a viable means of economic growth for the country's overall development. The river and physiographic characteristics of Nepal offer immense possibilities for the development of hydropower schemes of different scales. Out of them, a financial analysis has been carried out, namely they are:

1. Chilime Hydropower Company Limited (CHPCL)
2. National Hydropower Company (NHPC), and
3. Butwal Power Company (BPC)

According to the Nepal Electricity Authority (NEA) the country's total hydropower potential is up to 84,000 Megawatts, out of this only 650 Megawatts are produced by government and private hydropower sector. And, various national and international agencies have expressed keen interest to develop hydropower projects.

Hydropower development is the urgent need of the country to mitigate the current power and energy crisis. After political stability, economic development will be the main agenda and hydropower development is only the catalyst for all round development and economic growth of the country. Because of the increasing demand of electricity in Nepal and neighboring country.

Monitoring and Evaluation Activities of the projects (CHCL, NHPC, and BPC)

In the past, government only was involved in developing the projects, but after 1990, the involvement of private sector in hydropower development has changed the scenario of the hydropower development. So far, 6 – 7 projects amounting around 30% of total power is developed by private sector. The present government policies are also favorable for the private sector to develop electricity and sell to government or public. Therefore, the potential of booming the private sector investment in hydropower development can be seen. At present, 40 – 50 companies have taken the license to develop projects. The private companies are in various stage of the project development, mostly are under study but a few are under execution. Due to the financial constraints private sector developers are seeking for funding to mitigate their projects.

A major policy instrument adopted in Hydropower sector is Hydropower Development Policy 1992; to facilitate rapid exploitation of power sector is the provision of national or foreign private sector investment. In this regard investment for the projects is shown as following table.

Table No.1.1
List of Investment Value of Hydropower Companies

PROJECTS	NHPC	CHPCL	BPC
1.Listed Share	7000,000	7296,000	8390,577
2.Paid up Value	Rs.100	Rs.100	Rs.100
3.Total Paid Up Value	Rs.700000,000	Rs.729600,000	Rs.839057,700

(Source:Websites)

In above table, it shows that BPC has large amount of transaction. Being a leading and responsible hydropower of Nepal BPC, CHPCL, and NHPC has not successfully aligned its hydropower development plans as demanded by the ambitious hydropower goals of the nation.

As the increasing trend of population the demand availability of power force to neutralize the power section development. Nepal is mired by perpetual incidence of poverty, increase production to satisfy the demand of electricity. Technologies, professionals and farmers should go together to achieve greater impacts and ensure the country's power security.

1.2. PROFILE OF THE SELECTED HYDROPOWER COMPANIES:

1.2.1. NATIONAL HYDROPOWER COMPANY LIMITED

National hydropower company limited was established 1997 under the prevailing company act. It was started with the objectives of construction and operation of hydroelectric projects to fulfill the electricity requirements of the industrial and domestic sector of the country to excel the national economy. The company has owned and operated Indrawati –III hydroelectric plant. This is a run-of-river type hydropower station with the installed capacity of 7.5 MW. This plant is located in Sindhupalanchowk district of Bagmati zone.

The company supplies the generated power from the Indrawati – III hydroelectric plant to the national grid through 28 km. 1 Transmission line in Panchakhal substation. NEA purchase agreement made on 2054-08-15 B.S. Total sold unit to Nepal Electricity Authority during last two years 2062/063 and 2063/064 was 4,45,22,430 and 4,54,39,690 respectively.

1.2.2. CHILIME HYDROPOWER COMPANY LIMITED

Chilime Hydropower Company Limited (CHPCL) is a subsidiary company of NEA with 51 percent equity ownership. The company was established in 1996 with the objective of promoting the utilization of resources within the country for the development of hydropower. Chilime hydroelectric project with installed capacity of 22.1 MW and located at Rasuwa district was built and commissioned by this company on 25 August 2003 (2060/05/08 BS). The project has delivered 528.63 GWH of electrical energy of NEA since August 2003. NEA has invested NRs. 489.6 million in this project and

received the dividend of 10 percent, 20 percent and 35 percent of its equity share in the fiscal year 2003/04, 2004/05 and 2005/06 respectively. In fiscal year 2006/07, 25 percent of equity share were distributed to NEA staff. The shareholders received 35 percent dividend in that year.

CHPCL is now executing three more hydroelectric projects which are at various stage of development. The feasibility studies of two projects, Upper Sanjen hydroelectric project (35 MW) have been completed and application has been submitted for the power purchase agreement with NEA. Both of these projects are located upstream of the existing Chilime HEP. Local people in the project area are very eager to participate in the implementation of these projects. A letter of intent for financing in Upper Sanjen Hep has already been received from Citizen Investment Trust. Construction of these two projects will be started as soon as the construction license is issued by the Ministry of Water Resources.

CHPCL has also completed the feasibility study of Middle Bhotekoshi Sindhupalchowk district and other organization will be participating in the development of this project. CHPCL is committed to develop more medium and large scale hydroelectric projects in future with greater participation from various sectors in the country.

1.2.3. BUTWAL POWER COMPANY LIMITED

Butwal Power Company (BPC) Limited was established in 1996 when the total capacity of the power in the country was only 3.45 MW. It was started with the objectives of generating and distributing electricity from the private sector in Nepal. This company is known as pioneer hydropower developer in the private sector of Nepal, and has given remarkable contribution in the pace of hydroelectricity development of Nepal. It has been owned and operated Jhimruk power plant of 12.3 MW capacity and Andhikhola power plant of 5.1 MW. The company supplies power to the national electricity grid and also lights up 22,000 local consumers.

During the project development of Adhikhola and Jhimruk, the Butwal power company has participated in the establishment of numerous organization, including Himal Hydro and General Construction Ltd. In 1998; Nepal Hydro and Electric Private limited in 1982, and Hydro Lab Private Ltd. In 1999. There is an established engineering consulting wing, BPC Hydro consult within BPC in 1986 to provide services in hydropower , water irrigation and environment sector.

BPC also established Jhimruk Industrial Development Center Pvt. Ltd. In 1998 to mitigate the impact of Jhimruk hydroelectric project. The aim of establishing all these companies is to provide all necessary services from design and construction to operation of power plants including contribution to community development. Total sold unit to Nepal Electricity Authority during last two fiscal year 2062/063 and 2063/064 was 8,49,03,755 and 8,42,84,940 respectively.

1.3. STATEMENT OF THE PROBLEM

Nepal has an enormous hydropower potential, the prospects of becoming a prosperous country can be realized provided this energy source could be tapped prudently and efficiently at the earliest. As a leader of the country's power sector, Nepal Electricity Authority (NEA) has the prime responsibility of taking necessary steps towards achieving this goal.

Considering NEA's limited resources for capital investment, financial resources available in the local market should be tapped for the equity contribution. The successful commissioning of the Chilime Hydropower project under NEA- private partnership was indicative of the beginning of a new era of public – private sector Corporation in Nepal's electricity sector. This should act as a springboard for NEA to adopt on effective joint business investment policy to meet the growing demand of energy in the country.

It is very difficult to assess the efficiency of private sector's in view of their economic as well as socio- development goals. Different objectives of various parties involved with private projects ought to be fulfilled in a competitive environment by the management of

respective field. In order to realize these objectives, private sectors have to be efficient in the utilization of their resources.

Finance is one of the most important functional areas of a business. It is concerned with generation, transmission, distribution and other functions of any business including independent power producers. The problem towards which this study is directed is to identify and analyze the financial strengths and weakness of hydropower of Nepal. Besides the study attempts to seek answer of the following questions.

- Do the financial ratios best describe the performance of these hydropower projects?
- What types of contemporary steps are essential for performance improvement of Nepalese hydropower projects?
- What level of satisfaction is provided to the stakeholder by their hydropower projects?

Financial analysis may not provided exact answer to these questions but it does indicate what can be expected in the future.

1.4. OBJECTIVES OF THE STUDY

The study basically aims to evaluate the financial position of Butwal Power Company Ltd,, Chilime Hydropower Company Ltd, National Hydropower Company Ltd; and to suggest recommendation based upon it . The specific objectives of this study will be;

- To study and analyze the financial performance of BPC, CHPCL and NHPC
- To identify and examine the major strengths and weakness of BPC, CHPCL and NHPC.
- To evaluate the past and present challenges of hydropower projects in Nepal.
- To study the present financing pattern of the hydropower projects of Nepal and to provide suggestion to the hydropower companies on the basis of study findings.

1.5. SIGNIFICANCE OF THE STUDY

Hydropower is a competent economic project, non – polluting and environmentally efficient source of energy. Out of 84,000 Megawatts potential, only 50% power potential is technically feasible. But till the date only 606 MW has been harnessed and about 100MW under construction. That means less than 1% has been developed out of which 99% of yet to be developing. In the live of the fact, research analysis, and development of hydropower is very essential from the view of economic development of the nation and uplift the overall economic condition of the people in Nepal.

The industrialization process in Nepal is being developed very slowly. In spite of various attractive policies of government in respect of industrialization, new investment made on industrial sector is not satisfactory. On the other hand in developing country like Nepal development of hydropower industries and projects is essential for supply of electricity required for establishment of industries in Nepal. Financing and Banking sector of Nepal is increasing rapidly. They want to be established in the market for them hydropower financing can be the more reliable and viable source as there is huge potential in Nepal.

The study depicts the financial position of hydropower in Nepal facilitates the government, financing institutions, developer and other concerned authorities enabling to provide fact and present data for their need . As there is no such efficient study in Nepal, most of the hydropower developers are in dilemma to invest money in the field. It helps to provide actual information in the field.

The study will point out the problems in this field that will enable the developer, financial institution and the government for planning in the future to move ahead in the field. It certainly helps the policymaker of the government for formulating and amendment of hydropower policy and programmed in the future.

The study aims to provide the status and fact in the hydropower field focusing the private investment in the hydropower in Nepal which will enable the financing institutions and hydropower developers to choose the least cost and high return projects. The certainly helps to reduce the electricity charge to the consumer and Nepal can sell the electricity in

cheap price to the neighboring countries. Similarly, the study will find out the problems then provide the suggestion and recommendation for improvement in the field of planning to distribution of electricity. It helps to attract private hydropower developers, which enabling the rapid hydropower development in the country. In conclusion the major points are as follows;

- To find out the problems of financing institutions for investment in hydropower projects.
- To analyze the problems of the private developer in arranging finance for their Hydro Projects.

To provide suggestion on the basis of findings to the Hydropower

1.6 LIMITATIONS OF THE STUDY

Every study and research will not be free from some weakness and drawbacks. The study is limited to certain boundaries for which future new researcher will try to find out the fact in more detail.

The scope of the study is limited to the financing and hydropower organization selected through the judgment sampling by the research method. The research is based on the information and data available from the website of Nepal Electricity Authority, Ministry of water resource, and the journal , magazine , reports of Nepal Hydropower Association and responses given by the respondents.

The study is limited and focused on the present status on Aug 2007 and has covered 2003-2007 data available from the financial institutions and hydropower companies. This study does not reflect the hydropower development and financing problem in the world and neighboring countries so that it is entirely based on context of Nepal.

The basic objective of the study is to fulfill the academic requirement of Master Degree of Business Studies. The research can be used for particular study and it cannot be generalized. It is a collection of information and analysis of option of professional people, banks reports, Hydropower Developers, Financing Experts

The accuracy and reliability of the conclusion of data depends upon the published data, official records of the organization and opinion of the respondents. Due to the various constraints only three listed hydropower projects are selected for study.

1.7. ORGANIZATION OF THE STUDY:

This study has been organized in to five chapters. The title of each chapter is given under;

CHAPTER I: INTRODUCTION

This chapter deals with the background of the study, evaluation, statement of the problems, scope and limitation of the study, rationale of the study, methodology, objective of the study of the financial analysis of hydropower projects in Nepal.

CHAPTER II: REVIEW OF LITERATURE

Review of Literature mainly focuses on the emergence of financial analysis of Hydropower Projects in Nepal. It also tries to find out previous research works done about some topic with reference to its past and present action to be carried out. All the Research Works, Intellectual Studies, Paper Presentation, Government and Non – government Publications, Financing Institutions issues and Hydropower Developers are reviewed and presented.

This chapter also includes the conceptual framework of this study, which includes the basic concept and components of Financial Analysis of Hydropower Projects. In other words this chapter explains about fundamental aspect, key factor, and financing alternatives in the field of Hydropower Financing. It also explains the key points, strategy and different financing conditions of Hydro Projects. This chapter will provide overall concept element of financing in hydro projects and factors influencing in the context of Nepal.

CHAPTER III: RESEARCH METHODOLOGY

Research methodology is the main organ of this study. It is used to achieve the objectives of the study. The best thesis and practicability also depends upon the scientific research

method. Therefore, it includes research design, nature and source of data , method and tools of data collection, presentation and analysis of data and data processing.

CHAPTER IV: PRESENTATION AND ANALYSIS OF DATA

The various types of data collected through different sources have been presented in systematic order. The collected data presented will be analyzed and interpreted sign statistical tools. In this research works, simple arithmetic mean, financial ratios percentage shall be used as required to analyze the data. Interpretation and findings will be listed at the end of this chapter. At the last some recommendations will be given to reform the present Hydropower Financial Analysis of Nepal.

CHAPTER V: SUMMARY, CONCLSION AND RECOMMENDATIONS:

Collection, presentation of systematic order and reporting in the analysis of Financing of Hydropower Projects in Nepal is the main purpose of this study; summary and conclusion are drawn on the basis of valuable information given by experts of mentioned field. Hence, at the end, analyzing the collections, information of the hydropower and data , conclusion will be drawn and some important recommendation will be presented for further improvement and immediate action in the field of A Comparative Study on Hydropower Companies in Nepal.

CHAPTER – II

REVIEW OF LITERATURE

2.1. THEORITICAL REVIEW:

Review of literature is the process of the learning and understanding the concept of the related topic. After selecting the topic of research, researcher should study different materials (like Books, Journals, Magazine, Newspapers, Articles etc) to collect the information's about the subject matter of the study. This process of studying different educational materials which are related with the selected topic of the research is called "Review of Literature". In other words Review of Literature means to collect the necessary information about the research topic through the different sources. After the deep study of conclusion, merits, demerits etc.

In this chapter the review of various books with the proper research studies have been made to make clear concept about the performance analysis as well as to recall the theories and previous studies made by various researchers. Nepal being one of the rich countries in hydropower sector, many important literatures are available in this field. This chapter reviews the available literature relating to hydropower sector and various scholars and researchers on the financial analysis of hydropower projects in Nepal.

Financing in hydropower is concerned with the arrangement of funds for establishment, operation and maintenance of hydropower projects. Equity capital is not sufficient for construction of hydropower project. Hence, financing is required to meet the budgeted fund required for various activities. Financing is concerned with the planning and controlling of the firm's financial resources at least cost of capital /fund required for the projects. Hydropower projects need huge amount of funds to implement the projects for financing. The sources of financing are Development Banks, Citizenship Investment Fund, Employee Provided Fund and Commercial Banks.

2.1.1 MEANING AND CONCEPT OF FINANCIAL PERFORMANCE

ANALYSIS:

Financial performance depends on the individual projects, the financing institution, and the general conditions in the bank market. Financial performance is designed to determine the relative strengths and weakness of a company whether the company is

financially sound and profitable relative to other companies in its industry and whether its position is improving or deteriorating over time. Investors need such information in order to estimate future cash flows from the company and to evaluate the risk of these flows. Managers need to be aware of their company's financial position in order to detect potential problems and to strengthen weaknesses (Weston and Brigham, 1987; p.259)

Financial analysis is the key tool for financial decision and starting point for making plans before using sophisticated forecasting and budgeting procedures. The value of this approach is the quantitative relation that can be used to diagnose strengths and weaknesses in a company's performance. Financial performance is the main indicator of the success or failure of a company. The focus of financial statements and significant relationships that exist between them. (Khan and Jain, 1999; p.4.1)

Financial performance analysis involves the use of various financial statements. The financial statements contain summarized information of a company's financial affairs, organized systematically by the top management. These statements are used by investors and financial analysis is to examine the company's performance in order to make investment decisions. (Pandey, 1999; p.29.30)

Financial statements are prepared from the accounting records maintained by the company. They disclose financial information of a company during a financial year and explain what has actually happened and dividends over the past few years, in the form of income statements and balance sheets.

2.1.2 INDICATORS OF FINANCIAL PERFORMANCE ANALYSIS:

The financial performance contains summarized information organized systematically of the firm's financial affairs. Preparations of the financial statements are used by investors and financial analysis to examine the firm's performance in order to make investment decisions. Financial statements disclose financial information relating to any business concern during a financial year. Indicators of financial performance are presented in the

form of income statement and balance sheet usually prepared at the end of each financial year.

Financial performance reports what has actually happened to earnings and dividend over the past few years. Financial statements are prepared from the accounting records maintained by the enterprises. The basic objectives of financial performance are to assist in decision making. Evidently comprise the income statement and balance sheet.

Income Statement:

The income statement present a summary of revenues and expenses of a firm for the specific period, the period could be month, quarter , six months or a year depending on the time period for which revenues and expenses are summarized. (Paudel R.B. and Four Writers, 2007;p.27)

Balance sheet:

The balance sheet or statement of financial position shows the financial the financial structure of the company in terms of its economic recourses and respective interest or claims on such researches. A balance sheet shows the financial position of a company by detailing. The sources of fund and the utilization of this fund properly classified and arranged in a specific manner. It communicates information about the assets and liabilities and owners equity of a company as on a specific date usually at the end of each financial year.

Ratio Analysis:

Powerful and the most widely used tool of financial analysis is ratio analysis. A financial ratio is the relationship between two accounting figures, expressed mathematically or the term ratio refers to the numerical or quantitative relationship between two variables. This type of relationship can be expressed as percentage , fraction and proportion of numbers.

Ratio analysis is defined as the systematic uses of ratio to interpret the financial statement so that the strengths and weakness of a firm as well as its historical performance and current financial condition can be determined (Khan & Jain, p.80)

Ratio analysis is a powerful tool of financial analysis. A ratio is defined as “ the indicated quotient of two mathematical expressions” and as the relationship between two or more things . In financial analysis, a ratio is used as a benchmark for evaluating the financial position and performance of a firm. The absolute accounting figures reported in the financial statements do not provide a meaningful understanding of the performance and financial position of a firm. (Panday, 1999;p.109)

A large number of ratios can be generated from the components of profit and loss account and balance sheet.

2.1.3. FACTORS AFFECTING TO FINANCIAL PERFORMANCE ANALYSIS:

Securing financing may be a major obstacle in developing a hydro project, and the efforts involved should not be underestimated. In this section, several questions affecting the choice of financial performance are discussed. The principle question fir the developer is:

Should the project be financed by the use of in house funds, by co-development with a financial strong partner, by ordinary banks loans secured against the developer’s assets or property, or by limited resource project financing? The financing performance will affect the developer in several ways. Risk, revenue, and control over the project are all closely related to the financial arrangements. The developer’s financial resources are the first things to consider. A financially strong developer can use in - house fund or ordinary bank loans. This gives a large degree of control er the projects, which may be an important consideration, particularly if the project is a part of the developer’s core activity. With fewer financial resources, the developer must look for other routs of financing. The size of the debt component is important when considering limited resource project financing of hydro projects. The high arrangement costs make small projects

unattractive to project lenders. However limited – resource project finance ought to be available for projects in the upper segment of hydro, 5 – 10 MW. Co – development with a financially strong partner may be the only option for financing a hydro project. At an early stage, the developer should consider possible partners for co – development.

It may be worth approaching companies that are involved in the operation of hydropower. Such companies are well qualified to judge the feasibility of the project and will already process much of the expertise necessary for developing the project in house. Management of the project risks is another important consideration. In general, a high level of debt means a high cash-flow risk. Debt service has first claim on project earnings. The developers will receive revenue only if there is a surplus after interest and repayments. The size of financial obligation is important if the project is a failure. If the project fails, the Developer in the case of in – house funding or ordinary bank loans carries all the losses. Using the same methods as in limited resources project financing can mitigate much of the risk. However, the developer should consider the consequences if the project is a failure. In project finance, the cash flow risk are higher, but the involvement is limited. In non – resource projects the involvement is limited to the equity. In a limited resource project the developer has accepted additional undertakings, but the involvement is still limited. The developer will have to pay a price for reducing the risk. The arrangement costs are high and third parties accepting a risk will require a premium. The developer's desire to control the projects is also affected by the financial arrangements. With a high degree of equity control of the project will remain with the developer. With much unsecured debt the financiers will control the project until it has been repaid. If control over the projects development is important to the developer, he must accept larger financial involvements.

2.1.4. ADVANTAGES OF FINANCIAL PERFORMANCE ANALYSIS:

The financial performance is used to evaluate the financial analysis and position of a business. Preparations of the financial statement are used by investor and financial analysis to examine the firm's performance in order to make investment decisions.

There is no doubt the financial performance are powerful tools in analyzing the firm's financial statement. The advantages of financial performance analysis as follows:

It is used to identify the financial strength and weakness of the company.

It is used to identify the opportunity and threat of the company.

Financial performance analysis is a process of evaluating the relationship between components of the financial statement to obtain a better understanding of a company's position and performance.

2.1.5. DISADVANTAGES OF FINANCIAL PERFORMANCE ANALYSIS:

Globally, the financial performance is widely used to evaluate the financial structure analysis and position of a business. But there are certain disadvantage in using financial ratios. The analysts should be aware of these problems. The following are some of the disadvantage of financial performance analysis.

The financial performance analysis of a firm cannot determine if there is no basis of comparison for the particular financial ratio. There must be two or more than two companies to identify ratio for strength and weakness of the company in the market.

If, we go for comparison between the financial situations of two companies, the result may not be valid. It is because the situation under which one company is being operated may differ from that of the company.

2.1.6. LIMITATIONS OF THE FINANCIAL PERFORMANCE ANALYSIS:

The financial performance is widely used to evaluate the financial analysis and position of a business. But there are certain problems in using ratios. The analysts should be aware of these problems. The following are some of the limitation of financial performance.

There is no doubt the financial performance are powerful tools in analyzing the firm's financial statement. However, they should be used with extreme care and the analyst

must work with his/her judgment because they suffer from some serious limitations. The basic problem associated with financial performance is the lack of underlying theories to help us identifying which quantities to look at and which standard to use. In addition, some specific limitation of financial performance is as follows;

i. Requires Basis of Comparison:

The financial performance of a firm cannot determine if there is no basis of comparison for the particular financial ratio. For example, we cannot say that the net profit margin of percent is good or bad .It has to be compared against the financial performance of similar firm

ii. Different in situation of two firms:

When we go for comparison between the financial situations of two firms, the result may not be valid. It is because the situation under which one firm is being operated may differ from that of the firm, similarly, the situation of a firm itself may be different at different point of time.

iii. Change in price level:

Generally the different accounting figures drawn out from financial statement for financial analysis are expressed in terms of their monetary value, which are assumed to remain constant. But in practice, prices do not remain constant as they go on changing as per price level changes.

iv. Short – term changes:

Ratios if not calculated frequently, may suffer from short – term changes. Ratios once calculated and analyzed may have to be adjusted as soon as the condition, under which the firm is being operated, change. This creates problem for an analyst, as he has to frequently involve in ratio calculations and analysis.

v. No indication of future:

The basis concern of any analyst is the futurity of financial analysis is s/he has to determine the firm's financial position and performance in future. But as ratios are calculated on the basis of past accounting information, it results into what happened in past rather than what is going to happen in future.

As a matter of fact, ratio merely services quantitative information, the user of ratios need to understand certain qualitative aspect of the firm being analyzed. Therefore at the time of interpretation, the analysts need not to forget the qualitative aspect of raw financial data.

2.2. REVIEW OF RELATED STUDIES:

2.2.1 REVIEW OF RELATED JOURNALS (ARTICALS):

Hydropower development has always been vital issue for lots of Nepalese writers and researchers. This section/topic is devoted to the review of some major articles published in Journals, reports, newspaper and articles concerning state and problems of hydropower development in the country and financial performance of listed companies or NEA.

In the Journal "Hydro Nepal "(Issue 2, January 2008), Mr. Anil K. Shah has viewed on his article entitled "Banker's Perspectives on Hydropower Development in Nepal: Problems and Prospects". He has written now it is a great opportunity to invest in the development of Nepalese hydropower sector and traced out on the possibilities and problems associated with it. In his words, "The financial sector has identified hydropower development as a lucrative financing opportunity. The success stories of few hydropower projects developed by independent power producers in the recent past have also helped to create positive market interest and response. On the other hand , the risk is relatively high in this sector due to its technical nature, the necessity of huge funds and longer gestation as well as repayment periods. The financial sector is entering the energy sector gradually by taking some exposure, preferring to share the risk among various banks and developing consortium financing.

The fund available in the local market are able to support projects with a capacity of 20-50 MW only; for mega projects we will have to seek help from foreign institutional investors. As such, a new market for debentures, bonds or even mutual funds will open up. This will spread the return to the mass. In the event of an open market, by the year 2010 international banks will also enter Nepal. This, in turn, will increase the capacity of financial sector to gain required experience and hold in the market.

Nepalese Banks have also started to make alliances with Indian counterparts who will not only increase their capacity to lend but will also provide the technical expertise. Recently, PTC India Ltd. has agreed to enter into an agreement to work together with Nabil Bank Ltd. for power purchase sector development in Nepal. They have further appointed Nabil Bank Ltd to coordinate with other local banks to enter into similar agreements, which they intend to sign up with Nabil Bank Ltd. This has opened up a new avenue for sharing of expertise and has also increased the total capacity to lend.

In the journal VIDUT (year 16, Issue 1, 2062 Bhadra), Dr. Janak Lal Karmacharya has written an article entitled “ Financing Hydropower Scheme in Nepal “. In this article he has focused on the possibilities of hydropower development and some investment models of this sector in Nepal. Dr. Karmacharya is a famous expert as well as planner in the field of water resource and hydropower . In his words “Historically, the only source of financing NEA’s activities in through a mix of concessionary multilateral and bilateral loans and bilateral grants. The major multilateral donors are the World Bank and Asian Development Bank as well as to some extent the organization of Petroleum Exporting Countries. The major bilateral donors are Japan, Germany, Finland and Denmark. About 75 percent of generating capacities and entire transmission system has been installed by the financing received through above sources. Significant contribution for distribution system has also come from the donors coming from the Government of Nepal and NEA’s own internal resources. The donors contributed about 80 percent of the cost of development, the rest of the Government og Nepal and NEA’s sources. Rest of the generating capacity has been established by private sector”.

Dr. J.L Karmacharya focusing on fund mobilization of hydropower development has written as “The concessionary loans from multilateral as well as bilateral donors are made available to the Government of Nepal at the varying rate of 0.75 percent to 1.5 percent per annum. The Government of Nepal re – lends the money thus receive to NEA at the rate of 10.25 percent per annum, presumably to cover the interest as well as exchange rate. The same mechanism is applied to grant money received by the Government of Nepal and relent to NEA. This mechanism was agreed between the Government of Nepal and donors presumably to generate revenue to finance Government’s non – revenue generating social sector such as education, health etc. In other words, electricity sector is taxed to subsidize other sectors. This has made the cost of money made to NEA too expensive.

Dr. Karmacharya has traced out about financial requirement and some financial models of hydropower development in Nepal. On this ground, he has mentioned as “Presently, electricity is financed either public or private sector. The public – private participation in financing has been introduced through 20 MW Chilime Hydropower Station. In future, it is envisaged that project will be developed through

- public sector
- private sector ,
- public – private sector and
- public - public sector financing.”

Dr. Karmacharya , in this article, has pointed out that the generation investment requirement of NEA up to year 2011/12 is projected as US \$ 1.2 billion out of which US \$ 860 million will be debt and US \$ 340 million will be equity. This is based on the model of financing.

Table No 2.1
Generation Investment Requirement

Name of Project	Capacity (MW)	Commissioning Date (F.Y)	Estimated Cost (US \$ in million)	Proposed Mode of Development
Chameliya	30	2008/2009	75.00	NEA – Private JV

Upper Modi A	42	2008/2009	60.72	NEA – Private JV
Hewa Khola	10	2009/2010	23.50	NEA – Private JV
Khimti II	27	2010/2011	49.10	NEA – Private JV
Upper Seti	122	2010/2011	210.00	NEA – Public Sector
Upper Karnali	300	2011/2012	495.00	NEA – Public Sector
Upper Tamakoshi	309	2011/2012	277.00	NEA – Public, Private Sector

(Source: Vidyut, Year 16, Issue – 1, 2062 BS)

(i) Public Sector Finance

Despite the security concern of major donors and adverse political situation, it is expected that at least 122 MW of hydropower capacity, will be added through public financing. The Japan Government has started the process of preliminary appraisal of the project and consulting the Asian Development Bank for Co- financing. The total financing required will be in the tune of US \$ 300 million.

(ii) Private Sector Financing:

At present above 50 MW power purchase agreement has been signed with private hydropower developers. Norwegian developer is keen to develop 27 MW Khimti II hydropower project. The expected investment is US \$ 50 million. The Upper Chilime Hydropower Project with a total installed capacity of 40 MW is slated for development by Chilime Hydropower Company. The expected investment will be about US \$ 60 million.

(III) Public Private Sector Financing:

NEA is actively engaged in the development of hydropower project with equity participation. It envisages to investor about US \$ 100 million in equity over the period of 10 years. The remaining equity amount to US \$ 240 million and debt of US \$ 860 million will be raised by private developer. This financing gives the developer higher degree of comfort as there is no market risk, Nea being an equity partner. It is expected that 332 MW will be added through this mode of financing over the decade.

In the article “Financing Hydropower Schemes in Nepal”, Dr. Karmacharya has mentioned the NEA equity investment requirement for the future generation projects is as follow:

Table No 2.2
Financing Hydropower Scheme in Nepal

Projects	Debt(US \$ in million)	Equity(US \$ in million)	NEA-Equity Investment-30%)
Chameliya	52.50	22.50	6.75
Upper Modi – A	42.50	18.22	5.46
Hewa Khola	16.45	7.05	2.12
Khimti II	34.37	14.73	4.42
Upper Seti (Storage)	168.00	42.00	31.50
Upper Karnali	352.00	152.50	44.55
Upper Tamakoshi	193.9	83.10	24.93
Total	859.72	340.10	119.73

(Source: Vidyut, Year 16, Issue-1, 2062 BS)

(iv) Public – Public Sector Financing

This is a new model of financing and could prove to be the most effective way of raising the money. Given the growing demand of hydropower in India and availability of money in Indian market, attempt is being made to develop hydropower station in Nepal with equity participation of public sector enterprises of Nepal and India and forming joint venture Company to raise the debt. The first project of the kind could be a 300MW Upper Karnali Project. This mode of financing has tremendous potentiality. The tentative understanding has been reached between two sides to participate in the project with an equity partnership of 51:49 between National Hydropower Corporation of India and Electricity Authority. The 49% NEA equity will amount to above 73 million.

In the journal VIDYUT (Year 18, Issue 2, 2064 Falgun), Mr. C.B.Bajracharya on his article entitled “ A Revolution in Hydropower Development....A Must”, has written about investment opportunities, problems and financial scarcity for the hydropower development in Nepal. In his words – At this juncture of power scarcity and acute load shedding , Nepal Electricity Authority is facing a financial crunch in starting 309 MW Upper Tamakoshi Project, which is technically and economically viable. Nea is perusing

Karmachari Sanchaya Kosh and other financial entrepreneurs since some time ago. Recently this effort has been materialized to a large extent. The karmachari Sanchaya Kosh and NEA have jointly entered into an agreement. Accordingly the Karmachari Sanchaya Kosh shall provide loan amounting 12 billion Nrs for construction of upper Tamakoshi project which is a big milestone for execution of this project. Similarly other financial entrepreneurs are taking interest in providing loan of this project.

According to Minister of Finance, the Government of Nepal is not a position to invest in hydropower sector due to financial crunch. Nor it is interested in taking guarantee for the project to be constructed. Rather he has suggested that we have conducive atmosphere to invest in hydropower development in Nepal and we should invite local and foreign investors for the development of this sector through local and global competitions. In such a scenario, the imminent question is who is going to invest in hydropower development of Nepal? And where lies the solution?

Considering the past experiences, Mr C.B Bajracharya has highlighted the following alternatives for hydropower development of Nepal:

Nepal Electricity Authority shall manage funds from its own resources, Karnachari Sanchaya Kosh and other financial entrepreneurs construct the 309 MW Upper Tamakoshi project as soon as possible to meet this power crisis. If this project gets through or is successfully accomplished, NEA shall continue to venture into other new technically and economically viable hydropower projects. Presently, the pipeline projects in NEA's consideration and construction phase are as follows:

Table No. 2.3.

Projects under Construction Phase

S.N	Name of Hydropower Project	Capacity
1	Middle Marsyandi	70MW
2	Upper Tamakoshi	309MW
3	Upper Trishuli A	61MW
4	Upper Trishuli B	40MW

5	Chameliya	30MW
6	Rahughat	27MW
7	Kulekhani III	14MW

(Source: Vidyut, Year 18, Issue- 2, 2064 BS)

Certainly implementation of those projects is to be prioritized according to the technical and financial viability and availability of funds. To create a feeling of ownership and to attract public participation and cooperation, it would be more effective to provide some shares to the local residents and involve them in the construction works. Due to this, it would have some instinct of ownership and responsibility. In this way the construction work would be completed smoothly without any obstacles. In the mean time, the power evacuation facilities must be developed simultaneously as per the requirements.

Government of Nepal shall encourage local and foreign investors to invest in hydropower development of Nepal. But seeing the past experience, Government of Nepal must have simple and development oriented laws, rules and regulation as above mentioned so as to allure them. They must be convinced that their investment would certainly pay them back in the long run. The Government on its part must be guided by the fact that electricity generation is an important part of the infrastructure development and so this is one of the main priority sectors. It must be construed that this is a National Strategy. Government of Nepal must induce in the mind of local and foreign investors by enforcing new, simple flexible and development oriented laws, rule and regulations so that they would find their investment guaranteed and lucrative. Otherwise they would not invest in this sector. Recently some genuine IPPs are taking interest in constructing some new power projects. In the backdrop of this power scarcity, load shedding and fund crunches, it is very appropriate and need of the hour to invite them to invest in this sector. Of course aforesaid, they must feel secure their investment.

After the successful implementation of the 20MW Chilime hydropower project, the Chilime hydropower company is trying for 80 MW Middle Bhotekoshi hydropower project through local resources. They have set a target to complete this project within 4 years. If it happens, it would be great asset lessening the load shedding. Such

entrepreneurs must be encouraged by the government of Nepal and Nepal Electricity Authority as well. They should feel secure and should be guaranteed for the optimum profit for their investment. They should be guaranteed and assured of the purchase of the power generated by them in a reasonable price on a long term basis.

The Power Purchase Agreement (PPA) must not be a clumsy and tiring process but it should always be done in a friendly manner and in win – win position. From the past experiences, we know that the small and medium sized projects, where Nepalese expertise and workers are involved, are cheaper in comparison to those projects where foreign expertise and consultants are involved. Further their equipments are costly because of monopoly in some cases. Therefore Nepalese entrepreneurs or investors must always be encouraged to invest in the small and medium sized hydropower projects.

Some countries or donor agencies have shown interest in the following power projects:

Table No.2.4

Donor Interested Hydropower Project

S.N	Name of Hydropower Project	capacity
1	Buddhi Gandaki	600MW
2	Upper Karnali	300MW
3	Arun III	402MW
4	West Seti	750MW

(Source: Vidyut, Year 18, Issue-2, 2064 BS)

Seeing the increasing trend of the load growth and the power scarcity in Nepal, the Government of Nepal must take now immediate actions for implementation of new big hydropower projects, because completion of any hydropower project takes at least 4 to 5 years or more than that. Presently Nepal is facing heavy load shedding due to acute power shortage and the public disenchantment and dissatisfaction is growing day by day. Recently the Government of Nepal had set up a task force to recommend for technically and financial viable projects. As per the recommendation of task force and instructions of the parliament committee, GMR, an Indian entrepreneur has been awarded to construct

the 300 MW Upper Karnali project. They shall construct the project on their own cost. Government of Nepal has to invest nothing. They would provide 12 percent of the total generated energy free of cost to Nepal along with some shares. Another entrepreneur has offered 22 percent of the generated energy free of cost to Nepal while constructing Arun III project. A decision is going to be made in this regard as soon as possible. In this way Nepal shall get 124 MW of free energy from those two projects along with some shares also. Recently, it has come in the news that 10 percent free energy shall be offered by the investor in the West Seti project also. Although final decision is yet to be taken by the Government in this regard. Those offers seem lucrative and attractive for an underdeveloped country like Nepal.

Some experts are of the view that, to get free energy would be safer than having some shares at this moment of power crisis. Hence a global competition must be floated among the interested and genuine investors on the basic criteria of free energy to be supplied and the Government of Nepal must select the investors who commit to provide maximum free energy to Nepal in case of other huge projects also. Of course other criteria set by the Government must also be made. Certainly, this would have a very good impact on the development of our country in every sphere. Since we have lacking of fund, a prompt decision must be made immediately after rigorous discussions and deliberation at the backdrop of this power scarcity.

2.2.2. REVIEW OF RELATED ACTS/PLANS:

2.2.2.1 HYDROPOWER DEVELOPMENT POLICY, 1992:

Regarding different models of investor's participation for the hydropower development in Nepal, the Government of Nepal has formulated the hydropower development policy, 1992. In this policy, the Government of Nepal has declared as investment may be made for the projects relating to generation, transmission and distribution of hydroelectricity as follows:

- Sole or joint venture of one or more private national investors.
- Joint investors
- Joint venture of the Government and one or more national or foreign investors.

- Hundred percent of investments of one or more than one foreign investors.
- Joint venture of the national or foreign investors.

Power development policy, 1992 has made a provision of exemption of income tax to the newly established hydropower companies for certain years to inspire and facilitate them in the field of hydropower generation. In this regard, the provision made by the hydropower development policy, 1992 are as follows:

- i. An exemption of income tax shall be given to the projects of private sector generating and distributing electricity from the hydropower project up to the capacity of 1000 KW.
- ii. Hydroelectric project, constructed under to investment in private sector, producing more than 1000KW shall be granted exemption from income tax for a period of fifteen years starting from the date of its commercial production.
- iii. Any private entrepreneur, who constructs electric substation, and transmits and extends the distribution lines be granted exemption from income tax for a period of ten years.
- iv. If the private companies take on contract for purpose the operation, maintenance and management of the hydroelectric plant or transmission and distribution lines under the ownership of Nepal Government, such companies shall be granted exemption from income tax for a period five years.
- v. The income tax shall be less than ten percent of the corporate income tax which the government imposes from time to time.
- vi. If the investor reinvests in the hydroelectric project in order to diversity the project or to expand its established capacity by twenty – five percent or more, or to modernize the technology or to develop the subsidiary industry, such investor may deduct an amount of fifty percent of the new additional fixes asset, from the taxable income of such hydroelectric projects. Such deduction may be at a tome or from time within three years.

2.2.2.2 “Electricity Development Policy – 2058(2001)”

Government of Nepal envisaged achieving the following by 2007 in its “Electricity Development Policy – 2058”

- Boosting of industrial consumption’s by 125 percent;
- Establishment of power development fund and infrastructure development banks;
- Boosting of hydro capacity to meet a demand of 820 MW of which 70MW to be Export:
- Privatization of NEA.
- A dominant private sector contributing 75 percent of total investment in hydropower.

“Electricity Development Policy – 2058 “ is imposed with the following Objectives:

- Efforts shall be made to maximize the use of country’s hydropower potential in order to meet the domestic demand of electricity.
- Construction and implementation of hydropower projects shall be encourage to promote on the principles of build – operate transfer (BOOT)
- For making the electricity service dependable, reliable and extension of qualitative service delivery within the kingdom at reasonable cost; the exiting public sector institution shall be restructured to promote the participation by creating competitive environment of community/ corporation, institutions, local agencies and private sector in hydropower production, transmission and distribution.
- Small and medium hydropower projects shall be develop and promoted for domestic use in order to strengthen the situation of domestic power supply. The priority shall be given to develop hydropower projects on a competitive basis suitable to the electricity.
- The hydropower projects shall be identified for export purpose. The private sector shall export the electricity by developing such projects.
- The major multipurpose storage project shall be developed in a way to render the maximum downstream benefit to the country.
- The electrification program in the rural areas shall be encouraged.

- The rural electrification program shall be expanded in order to make the electricity services available to maximum people. A “Rural Fund Electrification “shall be established for this purpose.
- The rural electrification development program shall be based on mobilization of people participation.
- The deliver reliable and dependable electricity services and, make it easily available to consumer proper attention shall be given to safeguard their interest.
- For supplying the electrical energy at a reasonable rate, the electricity tariff fixations process shall be made transparent and reasonable.
- The unauthorized leakage of electricity shall be controlled. For this purpose necessary technical measures shall be adopted and legal arrangements shall be formulated besides these measures, emphasis shall be given to mobilized people participation to control the leakages.
- Incentives shall be provided for the proper utilization of electrical energy. In this context, Incentives shall be provided for the use of electrical energy for village water supply, irrigation, industry and tourism sector when electricity demand is low.(when supply is in excess of demand).
- The appropriate incentive provisions shall be made to attract national and foreign investment for the development of hydropower and transparent process shall be followed.
- Capital market shall be operated for investment in the electricity sector.
- The use of local labor and skill shall be given priority in implementing the hydropower projects.
- The industry producing the construction materials and equipments to be used in the electricity sector shall be encouraged to develop the industry.
- Proper arrangement shall be made to provide appropriate benefits at the local level while operating hydropower projects.
- The adverse effects on environmental shall be minimized caused due to the development and operation of hydropower projects and proper arrangements shall be made to resettle the displaced families.

- Hydropower shall be developed to replace the biomass and thermal energy in order to contribute towards environmental conservation.
- Regarding multi – purpose projects, the government could become a partner with private sector looking at the possibility of irrigation development.

2.2.2.3 Review of Ninth Five Year Plan (Electricity Development)

According to the population consensus 2058BS, by the end of ninth five year plan about 40% of The total population is benefited by the electricity. The 40 % includes 33% supplied by national grid and 7% from alternative energy (Solar, bio energy etc). At the end of ninth five year plan 58 municipalities and about 1600 VDSs have electrification on all 75 districts. At the end of ninth five year plan, the peak hour demand has reached to 426 MW. Power consumption per individual is 60KW, and average price per unit is Rs. 6.81 at the end of ninth five year plan.

a. Objectives

The long term vision of this sector is to expand hydroelectricity through appropriate harnessing of water resources thereby raising the life standard of the Nepalese in a sustainable way.

b. Vision

- Coordination will be established among peaking run – off – river , run – of – river and reservoir projects in order to make power supply reliable. Emphasis will be given on developing low cost small and medium hydroelectricity projects to supply power at an affordable rate.
- Priority will be given to run small hydroelectricity projects with people’s participation through cooperatives and users groups and non governmental organization.
- Policy will be reformed in order to attract the private sector to electricity development there by promoting investment and rendering the participation of the private sector competitive and transparent. Similarly, necessary amendments will be made to the provisions of existing laws.

- Emphasis will be given to one window policy for efficient and effective implementation of projects.
- In order to make electricity export effective and institutional, infrastructural reforms will be made for developing electricity as an exportable item.
- Rural electrification program will be made effective.
- Industries and transport service consuming maximum electricity will be developed and electricity demand management will be encouraged.
- Policy to involve foreign and domestic investors in electricity development will be adopted and environment conducive to investing power sector by the total local capital market will be created.
- The existing single buyer and seller system of electricity market will be turned into multi buyers and sellers system. Nepal Electricity Authority will be unbundled gradually for this purpose.

c. Targets

- To raise the consumption of electricity to 3.5 percent from the existing 1.4 percent of the total power consumption of the country.
- Initiatives will be taken to export 22,000 Megawatt electricity generated from the development of pancheshwor, karnali, and saptagandaki multipurpose projects.
- Hydroelectricity projects will be constructed to generate 2,230 Megawatt electricity, out of which 400 Megawatt could be exported.
- Electricity will be supplied to 63 percent people through national grid and 17 percent will be covered from alternative sources of energy.
- Per capita electricity consumption will be raised to 180 Kilowatt – hour.

d. Problems and Challenges:

The problems and challenges faced during the implementation of the ninth plan are as follows:

- It has become necessary to amend the electricity act, 2049 in order to revise the royalty that the government receive as per the Hydroelectricity Development Policy, 2058, and rectify the shortcomings.
- It has been felt that the private sector has been facing difficulties in accelerating the growth of electricity development due to the inefficiency of the one window policy.
- Non- Fixation of wheeling charge and lack of proper management of grid code have been creating problems in power development.
- There has been difficulty in recovering the due tariff from government agencies, corporation and municipalities.
- Both the public and private investors have not invested enough in transmission and distribution system compared to the production of electricity.
- Lack of investment has hindered the use and expected development of hydropower.
- There has been a seasonal imbalance between demand and supply of hydroelectricity as majority of existing hydro projects are run-of-river type.
- Although efforts have been made to stem leakage in the existing system, it has not been satisfactory.
- The coordination use of all alternatives of power has remained a challenge due to the topography of Nepal which has made it difficult to provide electricity to all Nepalese.
- Given the purchasing power of the majority of people, the current electricity tariff is very high and to bring it down is a challenge.

2.2.2.4 Tenth Five Year Plan (Electricity Development)

Of the total population, 48.5 percent was expected to have access to electricity Services by the end of tenth plan. Prior to the tenth pla, electricity was available to 58 municipalities and 1600 VDCs in the country. A total of 2100 VDCs were expected to have access to electricity services, at least partially, by the end of the tenth plan. Electricity supply has been expanded to cover 59 districts in the country. In the community rural electrification program, initiated during the tenth plan period, people's

participation in the expansion of electricity supply has been encouraging. The per capita electricity demand of 426 MW towards the end of ninth plan increased to 648 MW towards the end of tenth plan period.

a. Objectives

The following objectives have been set for the electricity sector to reduce poverty in a sustainable manner in the tenth plan.

- To produce electricity at low cost harnessing the existing water resources.
- To supply reliable and high quality electricity at reasonable price throughout the kingdom by integrating economic activities.
- To expedite rural electrification so that it could contribute to the rural economy.
- TO develop hydroelectricity as an exportable item.

b. Quantitative Targets

The following targets have set achieving the objectives of the tenth plan.

- Hydropower projects will be constructed to supply 842 Megawatt electricity out of which 70 Megawatt could be exported.
- Additional 10 percent people will be supplied electricity through national grid for which power will be supplied to 2600 Village Development Committees through the national grid and additional 5 percent people will be supplied power through alternatives sources of energy.
- Per capita electricity consumption will be raised to 100 kilowatt – hour.

2.2.2.5 Interim Three Year Plan (Electricity and Energy Development)

The importance and contribution of electricity in the development of agriculture, tourism and industries, and other social and economic sectors, is well established. The studies undertaken to date have shown that the feasible potential is 83,000MW. Of this development of 42,000 MW has been considered as technically and economically viable. The actual generation capacity of hydropower is only 556.4MW ;this is 0.67 percent of

feasible generation potential. Of this public sector contribution is 408.1MW and 143.3MW comes from the private sector.

Private sector investment in the development of electricity was significant in the ninth plan period. In the tenth plan period, however, the investment of the private sector was not encouraging. The government sector also failed to make investment plan, at present. In the context, the possibilities of hydropower export and its contribution to overall economic development of country, contribution to remain as the major challenge. The three year interim plan intends to develop the hydropower potential of the country as an export commodity, expanding hydropower to the rural areas and providing services with low investment, within the framework and perspectives of the Hydropower Development Policy,2001 and the National Water Plan.

a. Objectives

To create an environment conducive to domestic and foreign investment in the development of hydropower and to ensure reliable, quality and easily accessible electricity services for majority of the rural areas of the country, considering hydropower as an important base for the comprehensive economic, development of country.

b. Long Term Vision

The vision of the hydropower sector is to develop hydropower based on optimal utilization of water resources to meet the domestic power demand and export the surplus while expanding the development and services in order to contribute to the livelihood improvement of Nepalese people.

Based on perspective of National water plan, 2005, the target set for this sector in the long term (up to 2027) are:

- Generation of 4,000 MW of electricity to meet the domestic demand.
- Expansion of service of electricity in such a way as to ensure coverage of 75 percent of the population through national grid, 20 percent of the population

through non grid (Small and Micro hydropower) system and 5 percent of the population through alternative energy sources.

- Per capita electricity consumption to be increased to 400KWH.
- Significant export of electricity to contribute to national remittance earnings.

c. Qualitative Targets

- Completion of the construction of ongoing hydropower projects adding 105MW, and initiating the construction of new hydropower projects shall be taken up for additional 2,115MW.
- Additional 10 percent of population shall be covered in the electricity services through the national grid. To attain this electricity services shall be expanded to cover additional 500 VDCs in the national grid.
- Per capita electricity consumption will be expanded to 100 KWH.

d. Strategies

- To arrange for effective regulation of generation, transmission and distribution of electricity and the business thereto.
- To make the single door system effective in order to encourage domestic and foreign investment in the survey, studies and other promotional activities for the hydropower development.
- To coordinate and make consistent efforts in the expansion of electricity generation potential and in doing so, taking into account the domestic consumption as well.
- TO develop the electricity transmission capacity, contributing to the overall economic development and in doing so, to take the possibilities of inland electricity export into account.
- To strengthen and expand the electricity distribution system for social and geographic inclusion and to support the rural economy.

e. Problems, Challenges and Opportunities

Problems

The rate of implementation of hydropower project under the initiative of the private sector has not taken place at the pace of finalization of the purchase agreement of electricity with the Nepal Electricity Authority. The tendency of acquiring license for hydropower development and not undertaking the production and distribution, which needs to be discouraged, is being continued. Single door system has not performed as expected. This is believed to inhibit the accelerated development of power industry in the private sector. Consistent lowering of investments from the public sector has also been a cause for inadequate development of hydropower. As a result of this, load shedding is continuing in a country known for its enormous hydropower potential. Similarly, the order constrains now appearing are: lack of public and private sector investments in the development of transmission and distribution system, and amendment in the existing Electricity Act, 1992, implementation of Hydropower Development Policy, 2001, has not been taken up efficiently. This is constraining the development of hydropower. The rate of collection of electricity bills has not been consistently lowering due to country. The backlog bills payable by the government agencies and organization and municipalities have constantly been increasing.

Challenges

The electricity and power sector has been facing the following challenges.

- To ensure supply to meet the ever increasing demand for electricity.
- To make coordination efforts for the development of hydropower and alternate energy sources in order to provide electricity in the rural areas.
- To control the leakage of electricity.
- To rationalize the electricity tariff on time.

Strengths and Opportunities

- Encouraging people's participation in the community Rural Electrification program.
- Enhanced support of the people, based on the opinion that utilization of water resources of the country is the only means for Nepal's development. This has also

created impetus for increased people's participation in the development of water resources.

- Increasing investment of private investors and the domestic capital market in the hydropower sector.
- Manual for the hydropower development prepared to ensure unified approach and quality control in undertaking feasibility studies and construction works.
- Electricity development fund instituted under the support received from the World Bank, under the policy to encourage private sector investment in hydropower development.

2.2.3. REVIEW OF RELATED THESIS:

Various research works have been done by MBS student in different aspect of banking, NEA and hydropower companies such as fund management; cost volume profit analysis, financial performance etc. Studies and reviews on fund management, cost volume profit analysis, financial performance of the organization and their recommendation are relevant to this study. In this context, some reviewed previous thesis are as follows.

A study done by **Mr. Rudra Nath Baral**(2004) Entitled with **“Financing in Hydropower Projects in Nepal”** has examined the financial strength and weakness of NEA .He used secondary data of annual reports of the NEA.

The main objectives of his study are as follows:

- To study the present financing pattern of the hydropower projects in Nepal.
- TO find out the problems of financial institutions for investment in hydropower projects.
- To analyze the problems of private developer in arranging finance for their hydro projects.
- TO provide suggestion on the basis of the findings to the Hydropower Developers, Financing Institution and Government.

Major findings of his study were:

- The generation cost was very high and then huge loss in transmission and distribution, which again added to electricity tariff thus Nepalese electricity, is one of the expensive in the region.
- The development of the hydropower project involves a numbers of government ministries and departments. There is no clear- cut coordination between the different ministries even the level of information flow and integrated approach to support one main policy.
- Lack of an independent body for technical consultancies in Hydropower projects.
- Lack of coordination with INGOs and NGOs to the real developers.
- Hydropower developer's fear to lose control and high return they foresee in hydro projects.

Mr. Baral has drawn following recommendation from his research work.

A. Recommendations to the Financing Institutions

1. Local financing institutions are advised to work on the project financing concepts. As the hydropower financing cannot be done on the collateral basis. LFIs must practice the concept of project financing in true sense. Since the hydropower projects are capital intensive and the whole capital is needed during construction stage. A huge fund is required; unless the entire fund required is injected the revenue cannot inflow. A proper blend of debt and equity is required. Once, the developer put his equity honestly the lender must lend the debt in reasonable terms of concept of project financing.
2. Local financing institutions and developers are working separately, they must work together and establish the center of excellence of experts of different technical and financial back grimed.
3. Project financing should be accepted fully by financing institution. Financing institution should have technical expertise to appraise the project that reduces risk of payback.
4. Project financing must be done through the consortium of financing institutions. The lend back must do the coordination and convincing to other consortium partners.

B. Recommendations to the Hydropower Developers

- Real costing of projects components, do not bear the cost to cover everything from loan. It is therefore few good examples of successfully run hydropower projects are required to increase confidence of lenders. Objective of equity and put the equity first in order to attract the financing institutions.
- Commitment of the developers in form of personal guarantee is highly essential. Guarantee that the technical experts shown in paper are real and work for the project period. Better investigation of project in the feasibility and detail design phase.

C. Recommendations to the Government

- Role of INGOs and NGOs should be co-ordinate for the real developers. The project investigation and feasibility analysis should be done from the government budget or and from the grant assistance of the INGOs and NGOs.
- There should be a strict regulation for the licensing of the project and the potential developers must be evaluated for the ability to arrange finance for the project. The license should be strictly monitored for the duration on which the developers must accomplished his responsibilities; iotherwise the project is made available for other interested developers.

A study done by **Prakash Shrestha** (2008) Entitled with “**Marketing Strategy of Fund Collection and Mobilization of Joint Venture Commercial Banks(With special reference to Nabil Bank Ltd. and Himalayan Bank Ltd.)**”. He was concerned with fund collection and its mobilization of NABIL and HBL analyzing various ratios of the period of six years. He used secondary data of balance sheet and profit and loss A/C of the banks from 2001 to 2006 . The main objectives of his study were as follows:

- To find out the effectiveness in fund collection procedure of selected joint venture banks i.e. NABIL and HBL.

- To analyze the ability in mobilizing the total collected funds of the selected joint venture banks.
- To identify the factors that affect the fund collection and its mobilization procedure of selected joint venture banks.

Mr. Shrestha has drawn following conclusion from his research work:

- From the liquidity point of view HBL is comparatively better than NABIL.
- During six year's study period, NABIL is more successful to invest in productive sector ; HBL has weaker condition for the same in comparison with NABIL.
- NABIL has utilized its assets more efficiently in lending than HBL.
- Considering the profitability aspect NABIL is relatively more successful to earn profit on total asset than HBL. It has higher average return on total asset ratio. The ratio of profit over total assets employed could only be regarded as satisfactory for both banks.
- As per market value per share analysis, it can be stated that people's perception of NABIL's management and performance is better than HBL.
- By evaluating the trend analysis Nabil is more successful to mobilize its total fund than HBL.

A study done by **Mr. Tomlal Subedhi** (2008) Entitled **“Fund Management of Hydropower Companies. (With special reference to Chilime Hydropower Company Limited, Butwal Power Company Limited and National Hydropower Ltd.)”**. He was concerned with fund management of these companies analyzing various ratios and of the five years. He used secondary data of balance sheet and profit and loss a/c of these companies.

The main objectives of his study were as follows:

- To draw the overviews of the development of private and public hydropower companies in Nepalese Hydropower sector.

- To evaluate the fund management and financial position of public hydropower companies with the help of various financial tools.
- To analyze the present trends of public hydropower companies.
- To suggest and recommend possible guideline on the basis of major findings.

Major findings of his study were as follows:

Current ratio of CHPCL, BPCL and NHPL were in fluctuating trend through out the study period. The main ratio of BPCL was higher than CHPCL and BPC had more fluctuation in ratios as compared with NHPL. Mean ratio shows the highly liquid position of BPC, which shows the hydropower company did not have proper investment plan. CHPCL and NHPL had lower mean ratio than that of BPC but these hydropower companies may face the problem of working capital if they need to pay current liabilities at demand. Current ratios were in slightly fluctuating trend for CHPCL, BPC and NHPL. All three hydropower companies could not maintain the conventional standard of 2.1. However the average ratio of BPC was greater than that of CHPCL and NHPL, which signifies that BPC was more capable of meeting immediate liabilities in contrast to CHPCL and NHPL.

- Return on stockholder equity ratio measures the return on shareholder's investment in hydropower companies. The average ratio of CHPCL for the return on shareholders equity was higher than that of BPC and NHPL. Likewise the CV CHPL was lower. The ratios of CHPCL were in fluctuating trend. Average return on shareholders equity ratio of CHPCL was fluctuating trend.
- Long term debt to net worth ratio showed CHPCL and NHPL had higher long term debt for the beginning years and it was in decreasing trend. It shows that both companies were repaying their debt and they were in sound position for the settlement of solvency. Average ratio in NHPL was higher than that of CHPCL.

- In the beginning two years, the hydropower companies applied higher funds on investing activities because they had to acquire fixed assets and set up their business at that period. After the commercial operation started, CHPCL and NHPL applied their higher funds on financing activities for the repayment of long- term loan.

Mr. Subedhi has drawn following recommendation from his research work. :

- CHPCL and NHPL both hydropower companies have very low liquidity position because the both current and quick ratios are below the standard. Both hydropower companies cannot pay short term liability at the time of their creditor's demand. It may create difficult situation in future. So, both hydropower companies should keep sufficient level of current and quick assets to maintain their liquidity position.
- Profitability position of NHPL was weaker than that of CHPCL and BPC. It should improve overall efficiency by investing its funds in more returnable assets. i.e. risky area through proper risk analysis techniques.
- Debt servicing capacity of NHPL appeared weak .so, it is better to search more profitable investment by utilizing its capital and revolving fund. The capital adequacy position of NHPL seems to be less satisfactory than that of CHPCL.so, it need to raise the net worth.
- Earning to NHPL could not formulate plans and policies to attract private as well as public investors for the growth of hydropower companies creating investment friendly environment and focusing on their security in the hydropower development.

A study done by **Mr. Puskar Karki** (2009) Entitled “**Financial Performance Evaluation of Private and Public Sector Hydropower Companies in Nepal(A Comparison between Butwal Power Company Limited and Himel Power Limited.)**” examines the financial strengths and weakness of mentioned hydropower companies on its ratio analysis, Correlation analysis and least square analysis. He has also used statistical tools.

The main objectives of his research are as follows.

- To study and analyze the financial performance of BPC and HPL and draw comparative conclusion through financial evaluation taking relevant variables.
- To identify major strengths and weaknesses of BPC and HPL.
 - To study and examine the present trends of financial performance of private – public participation in hydropower sector.
 - To provide necessary suggestions on the basis of study findings.

Major findings of his study were as follows:

- The liquidity of both companies has satisfactory but to compare each other BPC cut off current liabilities to maintain a proper liquidity position.
- Fixed assets turnover ratio of BPC is satisfactory but total assets need to be managed more effectively. Similarly, both fixed assets and total assets need to be managed more effectively in HPL. BPC needs to find better ways to control and improve its receivable.
- As per hydropower policy, 1992 the government of Nepal shall provide exemption of income tax to the hydropower project up to the capacity of 1,000KW. for a period of fifteen years starting from the date of its commercial production.
- The hydropower sector should follow the practices of setting financial goals for future activities and should develop major programs to accomplish them.
- Government should formulate plans and policies to attract private as well as public investors for growth of hydropower companies creating investment friendly environment and focusing on their security in the hydropower development.

2.3 RESEARCH GAP:

The purpose of the study is to draw some ideas concerning to the financial analysis and to see what new contribution can be made and to receive some ideas knowledge and suggestion in relation to financial performance evaluation of listed hydropower

companies . In this context, the previous studies cannot be ignored because they provide the formulation to the present study. In other words, there has to be continuity in research work. The continuity in research is ensured by linking present study with the past research studies. It is clear that the reference of new research cannot be found on the exact topics, i.e. A Comparative Study on Hydropower Companies in Nepal. Therefore, to complete this research work, many books, journals, articles, websites and various published and unpublished dissertations are followed as guideline to make the research easier and smooth. Through these reference materials, the researcher can find out the gapping from the past research that has to be fulfilled by the present research work. In this regard, here, the researcher is going to analyze the different procedure of financial analysis of the selected three listed hydropower companies.

“A Comparative Financial Analysis on Hydropower Companies in Nepal”. Is a new topic for research work. It is expected that the uncovered areas of this research work will be studied. The gapping between old research and new research work will be focused and filled up based on the given objectives and limitation in this aresearch.

CHAPTER – III

RESEARCH METHODOLOGY

3.1. INTRODUCTION

The research methodology is the way to solve the research problem in order to make and type of research systematically, which fulfill the objectives of the study. The basic research methodology adopted in the study is the collection and analysis of primary and secondary data. Primary data shall be collected by interview and questionnaire method. Secondary data shall be collected through the desk study of the assigned projects.

3.2 RESEARCH DESIGN

Research design is the strategy for conducting research. It includes the general framework for collecting, analyzing, and evaluating data. Research design is the plan, structure and strategy for investigation conceived so as to obtain answer to the research problems. The research design adopted in the study will be collection of information through the primary and secondary data source. The data will be analyzed using the average and ratio analysis techniques. The research design of this study is based on analytical type and also less descriptive but more prescriptive because of the historical and secondary data.

3.3. POPULATIONS AND SAMPLE

The population for this study comprised all hydropower developers, financial institution of Nepal who was directly related to the financing investment, implementation or development of hydropower companies in Nepal. The total number of hydropower developers in Nepal was twenty (2006), and total financing institution dealing in the field of hydropower were twenty three. The list of hydropower developers and financial institutions are obtained from the Department of Electricity Department, Nepal Electricity Authority. Out of the total developer and financial institutions, ten hydropower developers and ten financial institutions were selected for the following judgment sampling methods.

Table No.3.1
List of Population Organization

Name of Hydropower Developers	Financial Institutions
1. Butwal Power Company Ltd.	1. Nepal Bank Ltd.
2. Himal Power Limited	2. Nabil Bank Ltd.
3. Chilime Hydropower Company Ltd.	3. Nepal Investment Bank Ltd.
4. Arun Valley Hydropower Company	4. Nepal Bangladesh Bank Ltd
5. National Hydropower Co. Ltd.	5. NB Insurance Company Ltd.
6. Khudi Hydropower Co. Pvt. Ltd.	6. Agriculture Development Bank.
7. Mailung Khola Hydropower Company	7. Nepal Rastra Bank.
8. Nepal Electricity Authority	8. Patan Finance Co. Ltd.
9. Sanima Hydropower Company	9. Himalayan Bank Ltd.
10. Bhotekoshi Power Company	10. Citizenship Investment Trust.

The population and sample of the selected hydropower is mentioned under. Total hydropower generation capacity and involved government, public and private hydropower authority or companies are as follows:

(A) Under NEA

Table No.3.2
Major Hydropower

S.N.	Hydropower Plants	Installed Capacity (MWH)
1	Trishuli	24.000
2	Sunkoshi	10.050

3	Gandak	15.000
4	Kulekhani - II	60.000
5	Kulekhani – III	32.000
6	Devighat	14.100
7	Marsyangdi	69.00
8	Puwa Khola	6.200
9	Modi Khola	14.800
10	Kaligandaki “A”	144.000
	Sub – Total	389.150

Table No.3.3

Small Hydropower (Grid Connected)

S.N.	Hydropower Plants	Installed Capacity (MWH)
1	Pharping	0.500
2	Panauti	2.400
3	Sundarijal	0.640
4	Phewa(Pokhara)	1.088
5	Seti(Pokhara)	1.500
6	Tinau (Butwal)	1.024

7	Baglung	0.200
8	Tatopani(Myagdi)	2.000
9	Jomsom	0.240
10	Chatara	3.200
	Sub – Total	12.792
	Total (A= i +ii)	401.792

Table No.3.4
Small Hydropower (Isolated)

1.	Small Hydropower (Isolated) – 30 SHP	6.176
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Table No.3.5
Public and Private Power Producer

S.N	Name of Hydropower Company	Name of Power Station	Installed Capacity (MW)
1	Himal Power Limited	Khimti HPS ‘I’	60.000
2	Bhotekoshi Power Co P. Ltd	Upper Bhotekoshi	36.000
3	Butwal Power Company	Adhikhola + Jhimruk	5.1+12=17.100
4	Chilime Hydropower Company Limited	Chilime HPS	20.000
5	National Hydropower Co. Ltd.	Indrawati	7.500
6	Arun Vally hydropower Dev. Company	Piluwa Khola	3.000
7	Sange Vidyut Company Limited	Shange HPS	0.183
8	Sanima Hydropower P.Ltd	Sunkoshi Small	2.500
9	Rairang Hydropower Dev.Co.P.Ltd.	Rairang Small	0.500

10	Alliance Power Nepal P.Ltd	Chaku Khola Small	1.500
11	Khudi Hydropower Ltd	Khudi Khola	3.450
12	Unique hydel Co. P.Ltd	Baramchi	0.980
13	Kathmandu Small HP System P.Ltd.	Salinadi	0.232
14	Thoppal Khala Hydropower Co.P.Ltd.	Thoppal Khola	1.650
15	Gautan Buddha Hydropower P. Ltd	Sisne Khola	0.750
16	Khoranga Hydropwer P.Ltd	Pheme Khola	0.995
	Total (C)		156.340
Grand Total Hydro (A+B+C)		564.458	

(Source: Vidyut, year – 18, Issue – 2, 2064 Falgun)

Out of above mentioned NEA owned hydropower centers, Public and Private hydropower companies, three public hydropower companies are chosen as sample for this research. These selected public hydropower companies are as follows:

Table No.3.6
Name of Sample Hydropower Company

S.N	Name of Hydropower Company	Name of Power Station	Installed Capacity MW
1	Chilime Hydropower Co. ltd.	Chilime HPS	20.000
2	Butwal Power Co.Ltd	Adhikhola + Jhimruk	5.1+12=17.100
3	National Hydropower Co. Ltd	Indrawati HPS	7.500

3.4 NATURE AND SOURCES OF DATA:

The nature of required data for this research is primarily secondary so that data have been collected from secondary source. The figures of equity share of data, balance sheet, and profit and loss account for different periods and ownership. Patterns of the companies have been collected from particular institutions, internet browsers, TU Library and other relevant sources. The study covers the period of five years from the fiscal year 2059/60 and ends in 2063/64

3.4.1. FINANCIAL STATEMENT ANALYSIS:

Financial statement analysis is largely a study of relationship among the various financial factors in a business as disclosed by the single set of statement and study of these factors as shown in a series of statement. It is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the items of balance sheet and profit and loss account. Thus the analysis of financial statement is an important and aid to financial analysis. It is helpful in assessing the financial portion and profitability of a business concern.

(Pandey,I.M 2007, p.500)

Financial statement analysis is a process of evaluating the relationship between components/parts of a financial statement to obtain a better understanding of a firm's position and performance.

(Metacalf R.W and Titard P.L, 2006 p.157)

Financial statement contains summarized information of the firms financial affairs organized systematically. They are the means to present the firms financial situations to the users. Presentation of financial statement is the responsibility of top management. As these statements are used by investors and financial analysts to examine the firm's performance in order to make investment decision. They should be prepared very carefully and contain as much information as possible.

(Pandey I.M ,2007 p.30)

Analysis of financial statement greatly helps investors in studying the three P's i.e. Projects, Payment and Protection. The prospects of the concern can be judged by looking to both the present and future profitability of the concern. The capacity of payment has to be judged on the basis of present and prospective liquidity of the concern. The protection has to be judged on the basis of the tangible assets backing which the company enjoys.

(Maheshwari S.N.2006. p. 789)

There are various tools for analyzing the financial statement can be divided into two parts . i. e financial tools and statistical tools. Both tools are shortly applied in this dissertation.

3.5. TOOLS AND TECHNIQUES AND DATA ANALYSIS:

The available data are first summarized and then financial statement will be analyzed by using financial and statistical tools. Under financial tools ratio analysis will be taken. This analysis will cover capital structure ratio, leverage ratio, activity ratio and profitability ratios. Likewise under the statistical tools mean and average, standard deviation, coefficient of variation, coefficient of correlation and regression analysis will be used.

3.5.1. FINANCIAL TOOLS:

The available data are first summarized and then financial statement will be analyzed by using financial tools such as ratio analysis which is given below.

3.5.1.1. RATIO ANALYSIS

Ratio is the expression of one figure in terms of another. It is the expression of the relationship between the mutually independent figures. It is a simple mathematical expression of the relationship of one item to another. Absolute figures along convey no meaning unless they are compared each other. Accounting ratios show the interrelationship existed among various accounting data.

Ratio analysis starts with the fundamental financial statement of the firms; balance sheet, income statement and cash flow statement. Ratios are classified into three broad types; performance measures and financial policy measures, performance measures include profitability ratio, growth ratio, and valuation measures, and operating involves assets management. Financial policy deals with leverage ratios and liquidity ratios.

3.5.1.1.1. LIQUIDITY RATIOS:

Liquidity ratio measures the short term obligation of the firm. According to I .M. Pandey, page: 114 “Liquidity ratio measures the ability of the firm to meet its current obligation. In fact, analysis of liquidity needs, the preparation of cash budgets and cash/funds flow

statements; but liquidity ratios by establishing a relationship between cash and other current assets to current obligations, provide a quick measures of liquidity”.

Liquidity ratios measure the short term financial obligation of the firm. In order to ensure short term solvency the company must maintain adequate liquidity. A firm should ensure that it does not suffer from lack of liquidity and also that it does not have excess liquidity. The failure of a company to meet its obligation due to lack of sufficient liquidity will result in a poor credit worthiness, loss of creditors, confidence or even in legal tangles resulting in the closure of the company. A very high degree of liquidity is also bad for the company, idle assets earn nothing. The firm should maintain necessary current assets so that it is easy to manage proper balance between high liquidity and lack of liquidity.

Liquidity ratio measure s financial policy by the enterprises by its basis the volume of current assets and current liabilities are determined. So if the liquidity ratio of the company is not enough, it will finally lead bankruptcy and high liquidity ratio unnecessary tied up in current assets.

To obtain the above said ratios the researcher attempts to calculate the following ratios:

$$(i) \quad \text{Current Ratio} \quad = \quad \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$(ii) \quad \text{Quick Ratio} \quad = \quad \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

$$(iii) \quad \text{Cash and Bank Balance to} \quad \frac{\text{Cash and Bank Balance}}{\text{Current Liabilities Ratio}} \quad = \quad \text{Current Liabilities}$$

$$(iv) \quad \text{Cash and Bank Balance} \quad = \quad \frac{\text{Cash and Bank Balance}}{\text{to Current Assets Ratio}} \quad \text{Current Assets}$$

3.5.1.1.2. LEVERAGE RATIO:

A firm should be strong in short term as well as long term financial position. According to Cannedy Ralph, Page: 213 “To judge the long term financial position of the firm these ratios help to measure the financial contribution of owners and creditors

comparatively. These ratios indicate the situation of capital structure which is calculated to measure the company's ability of using debt for benefit of financing".

The short term creditors, like bankers and suppliers of raw material, are more concerned with the firm's current debt paying ability. On the other hand, long term creditors like debenture holders, financial institution etc are more concerned with the firm's long term financial strength. Leverage ratios are calculated to measure the financial risk and the firm's ability of using debt of shareholders advantage.

To obtain the above said ratios the researcher attempts to calculate the following ratios:

- (i) Debt – Equity Ratio = $\frac{\text{Long term Debt}}{\text{Shareholder's Equity}}$
- (ii) Debt to Total Asset Ratio = $\frac{\text{Long term Debt}}{\text{Total Assets}}$
- (iii) Interest Coverage Ratio = $\frac{\text{EBIT}}{\text{Interest}}$
- (iv) Long Term Debt to Net Worth Ratio = $\frac{\text{Long term Debt}}{\text{Net Worth}}$

3.5.1.1.3. ASSETS MANAGEMENT RATIO OR ACTIVITY RATIO:

Assets management ratios are also known as turnover ratios or activity ratios or efficiency ratios. These ratios look at the amount of various types of assets and attempt to determine if they are too high or too low at current operating levels. They provide the measures for how effectively the firm's assets are being managed.

Activity ratio can be used to know the efficiency of the different assets. With the help of these ratios, the researchers can know whether the assets are utilized effectively or not. It measures how effectively the company employs the resources as it commands. Funds are created by the collection of share as well as debt from the owner, creditors and outsiders. The fund is invested in procuring various kinds of assets to generate profits. The better management of assets turnover is the better indication of a concern with regard to its

efficiency in assets management. Hence they are often referred to as efficiency ratios are computed to assess finance companies efficiency, in utilizing available resources.

According to I.M.Pandey; Page: 123 “ Activity ratios are employed to evaluate the efficiency with which the firm manages and utilize its assets. These ratio are called turnover ratios, because they indicate the speed with which assets are being converted to turn over into sales. Activity ratios, thus involve a relationship between sales and assets. The proper balance between sale and assets generally reflect that assets are managed well. Several activity ratio can be calculated to judge the effectiveness of assets utilization.”

To obtain the above said ratios the researchers attempts to calculate the following ratios:

- (i) Inventory Turnover = $\frac{\text{Sales}}{\text{Inventory}}$ or $\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$
- (ii) Debtors Turnover = $\frac{\text{Sales}}{\text{Debtors}}$
- (iii) Total Assets Turnover = $\frac{\text{Sales}}{\text{Total Assets}}$
- (iv) Equity Multiplier = $\frac{\text{Total Assets}}{\text{Shareholder's Equity}}$

3.5.1.1.4. PROFITABILITY RATIO:

Profitability is the end of result of a number of corporate policies and decisions. It measures how effectively the firm is being operated and managed. Besides owners and managers, creditors are also interested to know the financial soundness of the firm. Owners are eager to know their returns where as manager are interested in their operating efficiency. So they calculate profitability ratios because expectations of both owners and managers are evaluated in terms of profit earned by the firm. The profit is the difference between revenue and expenses of a certain period. The efficiency of the firm depends upon its party – payment capacity, which is based upon profit. It is essential to grow, survival and to compete with competitors. In fact sufficient profit must be earned to maintain the operation of the company be able to acquire fund from investors for

expansion and to contribute towards the goals of nation. This implies that profit is the measuring rod of companies for the financial performance of the hydropower company and vice versa.

The firm should earn profit to survive and grow over a long period of time. Profits are essential but it would be wrong to assume that every action initiated by management of the firm should be aimed at maximizing profit. “ The profitability ratio is calculated to measure the operating efficiency of the company. Besides management of company, creditors and owners are also interested in the profitability of the firm. Creditors want to get interest and repayment of principle regularly. Owners want to get a required rate of return on their investment. This is possible only when the company earns enough profit”.
(Pandey I.M. Page: 130)

Following are the major ratios used by the researcher to measures the profitability of a firm.

- (i) Return on Total Assets = $\frac{\text{Net Profit After Tax}}{\text{Total Assets}}$
- (ii) Return on Shareholder's Equity = $\frac{\text{Net Profit After Tax}}{\text{Shareholder's Equity}}$
- (iii) Return on working Capital = $\frac{\text{Net Profit After Tax}}{\text{Working Capital}}$
- (iv) Earnings per Share (EPS) = $\frac{\text{Earnings Available to Equity Shareholders}}{\text{Number of Shares}}$

3.5.2. TOOLS FOR PRIMARY DATA ANALYSIS:

The Chi – square (X^2) test is designed to work with nominal data. It provides the researcher with a mathematical way of examining a classification table to see whether the arrangement of values within the table is unusual in some way. In performing this test, the mathematical process will be looking for a significant difference between the

observed and expected frequencies. The Chi – square test involves a comparison of two or more responding groups (Wolf and Pant, 2005,p.287)

Since, Chi – square test does not make any assumption about the population parameters. It is called distribution free test. This test is good for normal or ordinal scale of measurement. Chi – square test is also used for analysis of quantitative variables, such as opinions of people, religious affiliation, smoking habits and so on. Chi – square test is a test that describes the magnitude of difference between and expected (theoretical) frequencies under certain assumptions. In other words, it describes the magnitude of the discrepancy between theory and observation. The formula for Chi – square test is given below:

$$\text{Chi – square , } \chi^2 = \sum \frac{(O - E)^2}{E}$$

Where,

O = Observed frequency

E = Expected frequency

$$\text{Expected frequencies} = \frac{RT \times CT}{N}$$

Where,

N = Number of observation

RT = Row Total

CT = Column Total

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

In this chapter the research has analyzed the data collected through the primary and secondary source. Beside these the research gathered the information collected through the experts professional people from opinion survey and interview . In this study, financial as well as statistical tools are used to achieve the predetermined objectives.

4.1. ANALYSIS OF SECONDARY DATA:

The secondary data which were collected through published materials of the Hydropower Association, Commercial Banks, Banker Association, Nepal Rastra Bank and Finance Company. But main materials will be the reports, paper presentation and articles related to financing of the hydropower. The main sources are Internet, NEA library, Nepal Hydropower Association (NHA), and TU Library. Published materials profile of banks; bulletins of Local Financial Institutions(LFI) ,i.e. Nepal Rastra bank, Nabil Bank, Agriculture Development Bank, Brochures, company profiles and newsletters, websites of various companies. All the information and data collected through the sources are analyzed and its statistical measure is presented below:

4.2. RATIO ANALYSIS:

Financial ratios are calculated to ascertain the liquidity position of the hydropower companies. It is the relationship between financial variables contained in the financial statement (i.e. balance sheet, profit and loss account and income statement). It helps the related parties to spot out the financial strength and weakness of the company. There are several financial tools, which can be applied in order to analyze the liquidity position of hydropower companies. The financial tools used in this study are Liquidity Ratio, Activity Ratio and Profitability Ratio. Likewise, composition of working capital in terms of cash and bank balance percentage are also calculated.

Following are the major financial tools used for the calculation of various statuses of the hydropower companies in this thesis related to BPC, CHPCL and NHPC.

4.2.1. LIQUIDITY RATIO:

Liquidity ratio measures the firm's ability to fulfill its short – term commitment. It is used to judge the companies capacity to meet its short – term obligation. These ratios focus on current assets and current liabilities and measured by current ratio and quick ratio.

Liquidity of the companies should be measured by the speed with a hydropower companies assets that can be converted into cash to meet the current need. A hydropower company should have a minimum cash balance to meet current liabilities and unexpected other current expenses.

4.2.1.1. CURRENT RATIO:

Current Ratio measures the liquidity position of the company. Current ratios show the strength of current assets available with the company over its current liabilities into cash in one accounting year. This ratio indicated the current short – term solvency position of the hydropower company. The current ratios are the ratio of total current assets to current liabilities. Higher current ratio indicates better liquidity position of a company. In other words, current ratio represents a margin of safety. The current ratio is calculated as:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current Liabilities

The higher the current ratio, the higher will be the margin of safety , and the larger the amount of current assets in relation to current liabilities, the more of the hydropower company to meet its current obligation. The standard current ratio should be 2:1The current ratio of different sampled years has been presented in the table no. 4.1 below:

Table 4.1
Current Ratio

(Rs. In million)

Fiscal Year	Quick Assets			Current Liabilities			Ratios(Times)		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	505.1	521.0	180.8	278.6	261.3	288.4	1.81	1.99	0.63
2060/061	152.8	481.8	189.2	525.1	210.2	260.7	0.29	2.29	0.73
2061/062	144.3	335.6	201.4	328.1	155.7	198.3	0.44	2.16	1.02
2062/063	206.8	543.4	157.5	327.5	443.9	234.8	0.63	1.22	0.67
2063/064	241.8	670.7	198.2	268.9	587.4	208.9	0.90	1.14	0.95
Mean (\bar{X})							0.81	1.76	0.80
Standard Deviation(s)							0.60	0.54	0.17
Coefficient of Variation(CV)							73.94	30.62	21.79

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

Table no.4.1 shows the current ratio of CHPCL,BPC and NHPC over 5 years. This table shows all the hydropower companies could not maintain the conventional standard of current ratio i.e. 2:1. The higher mean ratio shows the highly liquid position of BPC, which shows the hydropower companies did not have proper investment plan.

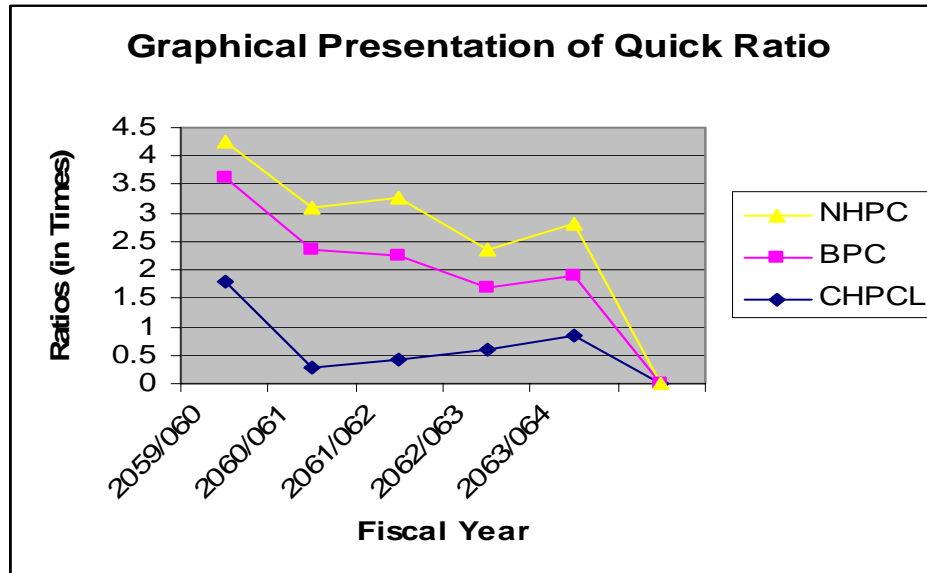
Figure No : 4.1

2059/060	496.3	477.0	180.4	278.6	261.3	288.4	1.78	1.83	0.63
2060/061	141.7	440.0	189.1	525.1	210.2	260.7	0.27	2.09	0.73
2061/062	134.7	287.6	201.2	328.1	155.7	198.3	0.41	1.85	1.01
2062/063	196.5	485.8	157.3	327.5	443.9	234.8	0.60	1.09	0.67
2063/064	229.79	611.8	196.0	268.9	587.4	208.9	0.85	1.04	0.94
Mean (\bar{X})							0.43	1.22	0.67
Standard Deviation(s)							0.72	0.63	0.22
Coefficient of Variation(CV)							168.56	51.84	33.08

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

Table no.4.2 shows the current ratio of CHPCL, BPC and NHPCL over 5 years. It shows the quick ratio of BPC is higher than NHPL and CHPCL. CHPCL has maximum current liabilities in the second year where as BPC has maximum current assets in the same year.

Figure No: 4.2



Mean and CV of the quick ratios came 0.43 and 168.56% of CHPCL, 1.22 and 51.84% of BPC and 0.67 and 33.08% of NHPC respectively. The mean ratio of BPC was greater than that of CHPCL and NHPC, which means that BPC was more able to pay its current liabilities. The CV of CHPCL was also greater than that of BPC and NHPC, which shows more fluctuation in quick position. The standard deviation of quick ratio of CHPCL is 0.72, 0.63 for BPC and 0.22 for NHPC, which indicated the CHPCL has high risk involved than in BPC and NHPC.

1. LEVERAGE RATIO:

Leverage ratio is also called as Capital Structure Ratio, which shows long term solvency of hydropower companies. It is used to judge the long term position of the companies. Generally, capital refers to the composition of the debt and equity component on overall capital of a firm. This ratio indicates the mix of fund provided by owners and lenders.

4.2.1.4 DEBT – EQUITY RATIO (D/E RATIO):

Debt to equity ratio is calculated dividing total debts by total shareholders equity. Total debt refers to sum of long term debt, current liabilities and debentures. This ratios shows the relationship between debt and equity capital. High debt-equity ratio indicates greater financing by debt holders than those of equity holders. From the according to creditors,

high debt to equity ratio of the hydropower companies is more risky to them. It means the hydropower companies failed to satisfy his creditors. Debt to Equity Ratio is calculated by:

$$\text{Debt to Equity Ratio} = \frac{\text{Total Debts}}{\text{Shareholders Equity}}$$

Table 4.3
Debt to Equity Ratio

(Rs. In million)

Fiscal Year	Total Debt			Shareholders Equity			Ratios(%)		
	CHPCL	BPC	NHPL	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	1450.3	-	959.3	477.3	1369.3	488.7	303.86	-	196.30
2060/061	1329.6	-	967.2	716.80	1269.1	540.5	185.49	-	178.95
2061/062	1125.5	-	962.7	1003.80	1173.2	638.1	112.12	-	150.87
2062/063	591.0	-	939.4	1493.41	1209.9	659.6	39.57	-	142.42
2063/064	168.5	-	868.3	1942.30	1210.6	7.7.2	8.68	-	122.78
— Mean (X)							129.94	-	158.26
Standard Deviation(s)							118.87	-	29.32
Coefficient of Variation(CV)							91.48	-	18.53

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

Figure No: 4.3

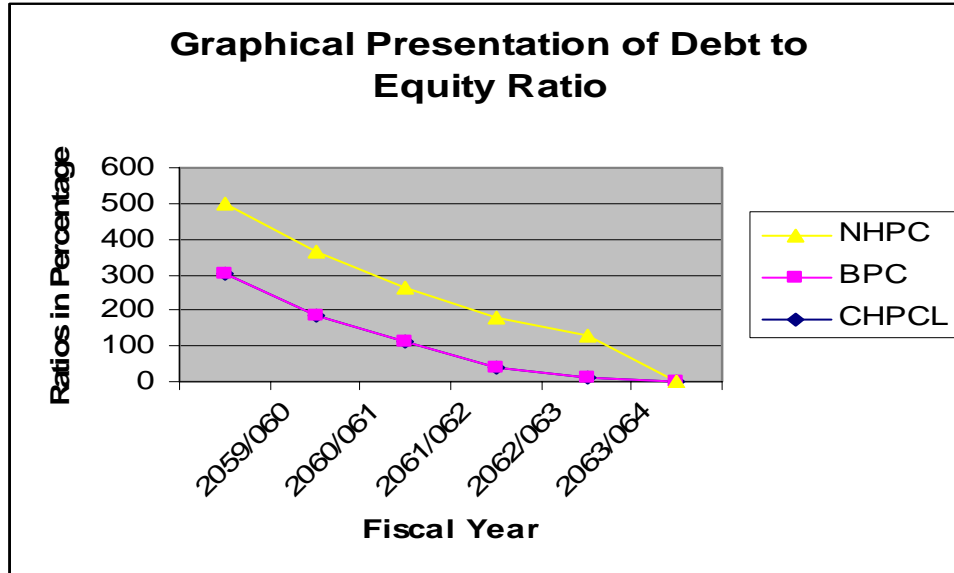


Table No. 4.3 shows debt to equity ratios of CHPCL and NHPC. In the case of BPC there was no any long term debt. The ratios for CHPCL came 303.86%, 185.49%, 112.12%, 39.57% and 8.68% for the study period. Similarly, the ratios for NHPC came 196.30% , 178.95%, 150.87%, 142.42% and 122.78% for the study period. These ratios were in decreasing trends for CHPCL and NHPL over the study period.

Mean, standard deviation and CV for the debt to equity ratio of CHPCL is 129.94, 118.67 and 91.48% and 158.26% respectively for NHPC. In comparison of two hydropower companies, capital structure of NHPC is less risky than that of CHPCL. CV of ratios remained lower in NHPL than that of CHPCL, which clarifies that the ratios of CHPCL were less consistent.

4.2.2. CAPITAL STRUCTURE RATIO:

Capital structure ratios of the selected hydropower companies for the study period have been presented in the given table individually. It indicates the capital employed composition of the hydropower companies.

Table 4.4
Capital Structure of CHPCL

Particulars	2059/060	2060/061	2061/062	2062/063	2063/064
Share Capital	477.60	492.20	492.20	729.40	729.57
Debt Capital	1704.20	1329.57	1125.47	591.00	168.50
Total	2181.79	1821.76	1617.66	1320.40	898.07
Share Capital Ratio(%)	21.89	27.02	30.43	55.24	81.24
Debt Capital Ratio(%)	78.11	72.08	69.57	44.76	18.76

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

In the above presented table no 4.5 shows that the debt capital ratio of CHPCL were in decreasing trend i.e. 78.11, 72.08, 69.57, 44.76 and 18.76 percentage from 2059 to 2064 respectively. The share capital ratios of the CHPCL during the same period were in increasing trend i. e. 21.89, 27.02, 30.43, 55.24 and 81.24 percent respectively. It shows that the CHPCL wants to increase the equity financing and decrease the debt financing. It means the company intends to reduce the financing from outsider's cost bearing fund.

Table 4.5
Capital Structure of BPC

Particulars	2059/060	2060/061	2061/062	2062/063	2063/064
Share Capital	839.06	839.06	839.06	839.06	839.06
Debt Capital	75.58	76.68	81.43	90.68	84.30
Total	914.64	915.74	920.49	929.74	923.36
Share Capital Ratio(%)	91.74	91.63	91.15	90.25	90.87

Debt Capital Ratio(%)	8.26	8.37	8.85	9.75	9.13
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Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

In the above presented table no 4.6 shows that the debt capital ratio of BPC were in increasing trend up to fourth year i.e. 8.26, 8.37, 8.85 and 9.75 percent respectively and decreased in the fifth year i.e. 9.13 percent. Similarly, the share capital ratio of BPC during the same period were 91.47, 91.63, 91.15, 90.25 and 90.87 percent respectively. It shows that the BPC wants to maintain the trend of equity financing.

Table 4.6
Capital Structure of NHPC

Particulars	2059/060	2060/061	2061/062	2062/063	2063/064
Share Capital	505.00	560.00	651.66	656.54	693.04
Debt Capital	959.25	967.17	962.65	939.36	868.26
Total	1464.25	1527.17	1614.31	1595.89	1561.30
Share Capital Ratio(%)	34.59	36.67	40.37	41.14	44.39
Debt Capital Ratio(%)	65.51	63.33	59.63	58.86	55.61

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

In the above presented table no 4.7 shows that the debt capital ratio of NHPL were in decreasing trend i.e. 65.51, 63.33, 59.63, 58.86, and 55.61 percent from fiscal year 2059/060 to 2063/064 respectively. Similarly, The share capital ratios of the NHPC during the same period were in increasing trend i. e 34.59, 36.67, 40.37, 41.14 and 44.39 percent respectively. It shows the NHPC wants to increase the equity financing and decrease the debt financing. It means the company intends to reduce the financing from outsider's cost bearing fund.

4.2.2.1. TOTAL DEBT TO TOTAL ASSETS RATIO:

Total debt to total ratios shows the condition of company by showing the level of debt and assets. The ratio is calculated by dividing total debts by total assets. The higher ratio indicates the greater portion of outsider's fund investment in term of the hydropower companies' assets.

$$\text{Debt to Total Assets Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

Table 4.7

Total Debt to Total Assets Ratio

(Rs. In million)

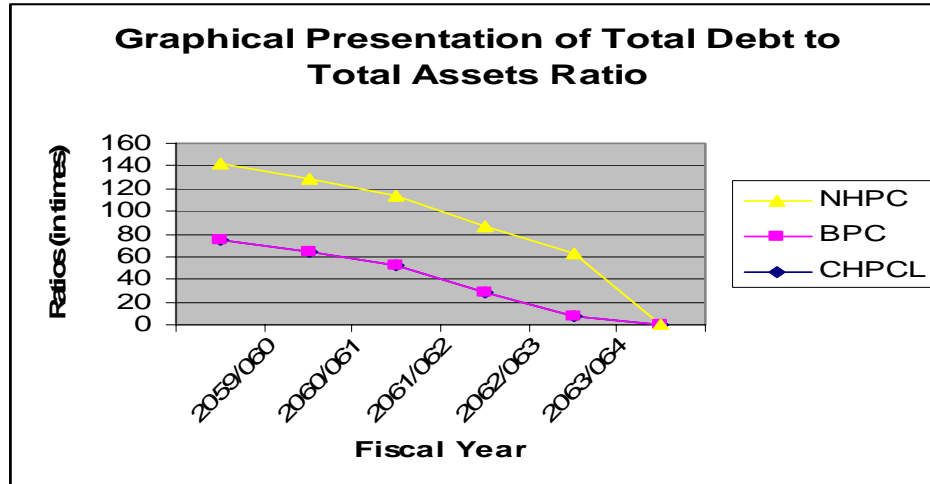
Fiscal Year	Total Debt			Total Assets			Ratios(%)		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	1450.3	-	959.3	1927.9	1564.2	1448.0	75.2	-	66.3
2060/061	1329.6	-	967.2	2046.4	1369.0	1507.7	65.0	-	64.2
2061/062	1125.5	-	962.7	2129.3	1283.6	1600.7	52.9	-	60.1
2062/063	591.0	-	939.4	2084.5	1300.6	1599.0	28.4	-	58.7
2063/064	168.5	-	868.3	2110.7	1294.8	1575.5	8.0	-	55.1
— Mean (X)							45.88	-	60.88
Standard Deviation(s)							27.47	-	4.41
Coefficient of Variation(CV)							59.87	-	7.25

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064 and websites

In the above table, we can find that, total debt to total asset ratio of CHPCL were 75.2, 65, 52.9, 28.4 and 8 percent respectively from first to fifth year. Similarly, the ratios for NHPC were 66.3, 64.2, 60.1, 58.7 and 55.1 percent respectively. But there is no total debt to total asset ratio for BPC during the study period.

Mean, standard deviation and CV for the debt to total ratio of CHPC is 45.88, 27.47 and 59.87 percentage. For NHPC it were 60.88, 4.41 and 7.25 percentage . Mean of the ratio came greater in NHPC as compared to CHPCL, which signifies that the former followed more aggressive policy in raising debt capital. From the CV analysis it can be noticed that the ratio of CHPCL varied considerably the study period because there was higher CV in CHPCL than that of NHPC.

Figure No : 4.4



4.2.2.2 INTEREST COVERAGE RATIO:

This ratio is computed dividing earning before interest and tax (EBIT) by interest charges. This ratio evaluates the debt serving capacity for the hydropower companies. The higher ratio shows that the hydropower company can pay the interest easily.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Charges}}$$

Table 4.8
Interest Coverage Ratio

(Rs. In millions)

Fiscal Year	EBIT			Interest Expenses			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	-	(44.90)	73.1	-	-	89.4	-	-	0.82
2060/061	436.5	261.2	116.7	162.7	-	120.0	2.68	-	0.97
2061/062	512.5	202.3	130.2	127.1	-	116.8	4.03	-	1.11
2062/063	589.4	298.7	132.3	81.6	-	115.3	7.22	-	1.15
2063/064	712.5	273.7	120.1	45.0	-	96.8	15.83	-	1.24
— Mean (X)							7.44	-	1.06
Standard Deviation(s)							5.91	-	0.17
Coefficient of Variation(CV)							79.39	-	15.64

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064

In the above table 4.9, we can find that, interest coverage ratio of CHPCL were 2.68, 4.03, 7.22 and 15.83 times . There were no interest expenses in BPC during the research period. Similarly, the ratio of NHPC came 0.82, 0.97, 1.11, and 1.24 times in respective years of the study period. Both hydropower companies' interest coverage ratio is increasing trend.

Mean, standard deviation and CV for the interest coverage ratio of CHPC is 7.44, 5.91 and 79.39 percentage. For NHPC it were 1.06, 0.17 and 15.64 percent respectively. The mean ratio of NHPC was much lower than that of CHPC, which reveals the better debt servicing capacity of CHPCL. By comparing CV of the ratios of CHPCL with NHPC for different five years period, it was varied considerably in CHPCL because of higher CV ratio

4.2.3 ACTIVITIES TURNOVER RATIO:

The fund of creditors and owners are invested in various assets to generate sales and profit. Activity ratios are used to evaluate the efficiency with which the firm manages and utilizes its assets. This ratio measures a firm's efficiency in utilization of its assets. These

ratios look at the amount of various types of assets and attempt to determine if they are too high or too low with regard to current operating levels.

This ratio indicates how quickly certain current assets are converted into cash. From this ratio it can be known whether or not the business activities are efficient. These ratios are also called turnover ratio because they indicate speed with which assets are converted or turn into profit generating assets. These ratios, moreover, help in measuring the hydropower companies' ability to utilize their available resources. Mostly utilization ratios are used to evaluate managerial efficiency and proper utilization of assets.

Activity ratios are employed to evaluate the efficiency with which the firm manages and utilize its assets. These ratios are also called turnover ratios, because they indicate the speed with which assets are being converted to turn over into sales. Activity ratios, thus involve a relationship between sales and assets. The proper balance between sales and assets generally reflect that assets are managed well. Several activity ratios can be calculated to judge the effectiveness of assets utilization.

4.2.3.1. INVENTORY TURNOVER RATIO:

Inventory turnover ratio indicated how quickly the inventory is converted into cash or liquid asset. From this ratio it can be known whether or not the business activities are efficient. These ratios are also called turnover ratio because they indicate speed with which assets are converted or turnover into profit generating assets. These ratios, moreover, help in measuring the hydropower companies' ability to utilize their available inventory balance. Mostly this ratio is used to evaluate managerial efficiency and proper utilization of inventory.

This ratio is calculated dividing total assets by the closing balance of inventory. This ratios shows the relationship between sales and inventory utilization. High inventory turnover ratio indicates better performance of the hydropower companies.

$$\text{Inventory Turnover} = \frac{\text{Sales}}{\text{Inventory}}$$

$$\text{Or,} \\ = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

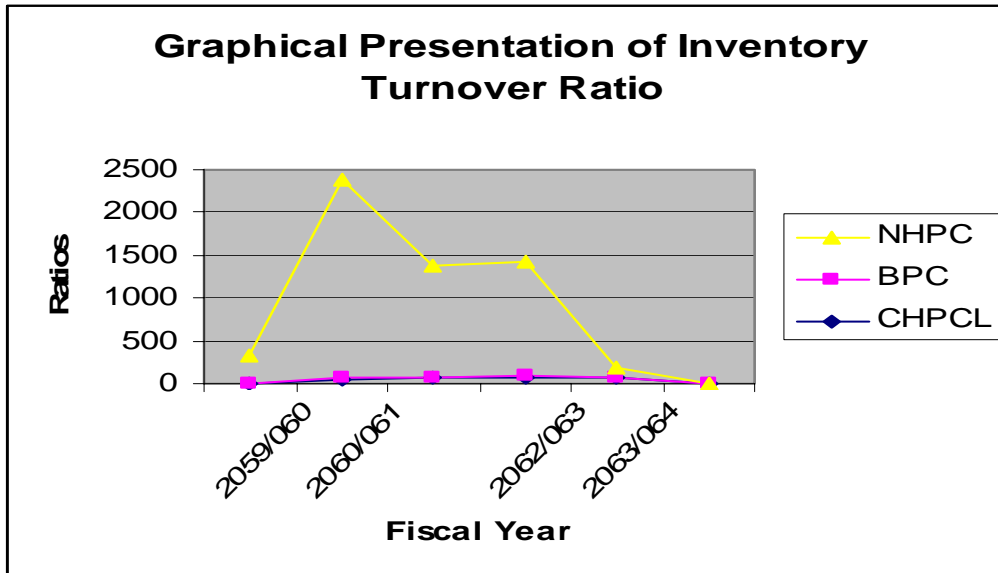
Table 4.9
Inventory Turnover Ratio

(Rs. In million)

Fiscal Year	Sales			Interest Expenses			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	0	107.9	126.3	8.85	43.98	0.39	0	2.45	323.85
2060/061	593.5	294.8	185.0	11.12	41.77	0.08	53.37	7.06	2312.50
2061/062	692.0	335.5	194.6	9.60	48.04	0.15	72.08	6.98	1297.33
2062/063	819.4	375.3	213.4	10.30	57.62	0.16	79.55	6.51	1333.75
2063/064	903.5	392.9	219.6	12.09	58.90	2.19	74.73	6.67	100.27
— Mean (X)							55.95	5.94	1073.54
Standard Deviation(s)							32.81	1.96	889.12
Coefficient of Variation(CV)							58.65	33.01	82.82

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064

Figure No : 4.5



In the above table 4.10 shows the inventory turnover ratios of CHPCL, BPC and NHPC for the five year research period. There should be certain percentage of inventory. This ratio was highly fluctuating in NHPC. The ratio of CHPCL remained 0, 53.37, 72.08, 79.55 and 74.73 times respectively throughout study period. The ratios of BPC was 2.45, 7.06, 6.98, 6.51 and 6.67 times respectively. Similarly, the ratios in NHPC came 323.85, 2312.50, 1297.33, 1333.75 and 100.27 times respectively.

Mean, standard deviation and CV for the inventory turnover ratio of CHPCL is 55.95, 32.81 and 58.65 percentage. For BPC is 5.94, 1.96, and 33.01 percentage. Similarly mean, standard deviation and CV for the inventory turnover ratio of NHPC is 1073.54, 889.12 and 82.82 percentage respectively. The average ratio of HPC was higher than that of CHPCL and BPC, which shows that NHPC had better turnover of the inventory than that of CHPCL and BPC. CV of BPC, CHPCL and NHPC during the study period. But the ratios of the hydropower companies are in fluctuating trends for the study period.

4.2.3.2. DEBTORS TURNOVER:

Debtors' turnover is used to evaluate the efficiency level of recovering the credit sales. This ratio measures a firm's efficiency in collection of funds from its goods sold. These ratios indicate the operating level of hydropower companies with the view point of collecting funds from the sale of electricity.

Debtors' turnover ratio is calculated by dividing sales by closing debtors.

$$\text{Debtors Turnover} = \frac{\text{Sales}}{\text{Debtors}}$$

This ratio shows the relationship between sales and debtors. High debtors' turnover ratio indicates better fund management position. From the fund management viewpoint, lower debtors' turnover ratio of the hydropower companies is more risky to them. It means the hydropower company fails to manage the funds.

Table 4.10
Debtors Turnover Ratio

(Rs. In million)

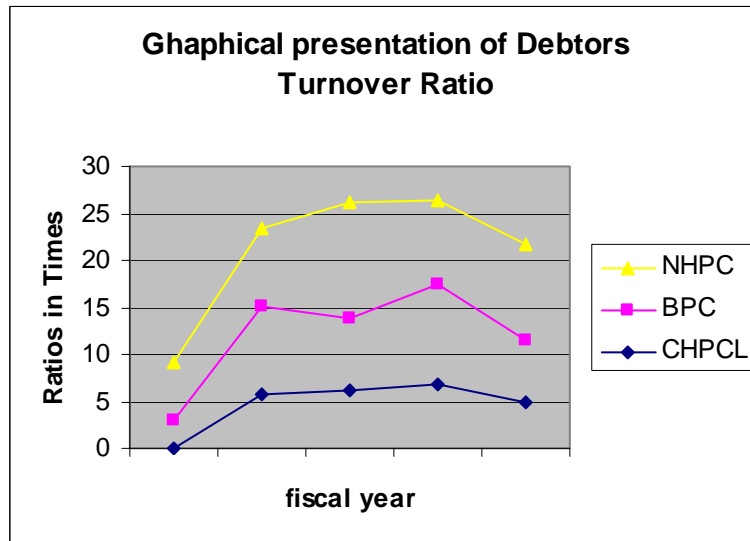
Fiscal Year	Sales			Debtors			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	0	107.9	126.3	0	36.22	20.78	0	2.98	6.08
2060/061	593.5	294.8	185.0	104.44	31.31	22.34	5.68	9.42	8.28
2061/062	692.0	335.5	194.6	112.29	44.28	15.72	6.16	7.58	12.38
2062/063	819.4	375.3	213.4	119.89	35.51	23.77	6.83	10.57	8.89
2063/064	903.5	392.9	219.6	183.96	58.92	21.63	4.91	6.67	10.15
— Mean (X)							4.72	7.44	9.17
Standard Deviation(s)							2.73	2.92	2.33
Coefficient of Variation(CV)							57.84	39.30	25.36

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064

Table no 4.11 shows the debtors' turnover ratios of CHPCL, NHPC and BPC for the five year research period. There should be well recovery of credit sales to manage the funds of hydropower companies. This ratios was highly fluctuating in CHPCL. The ratios in CHPCL remained 0, 5.68, 6.16, 6.83 and 4.91 respectively throughout the study period. The ratios of BPC were 2.98, 9.42, 7.58, 10.57 and 6.67 respectively. Similarly, the ratios of NHPC were 6.08, 8.28, 12.38, 8.09 and 10.15 times in the respective five year study period. Mean, standard deviation and CV for the Debtors turnover ratio of CHPCL are 4.72, 2.73 and 57.84 percentage. Likewise, mean, standard deviation and CV for the

Debtors turnover ratio of BPC are 7.44, 2.92 and 39.30 percentage. Similarly, mean, standard deviation and CV for the Debtors turnover ratio of NHPC are 9.17, 2.33 and 25.36 percentage respectively. The data shows that the debtors' turnover ratios of the hydropower companies are in fluctuating trends.

Figure No : 4.6



4.2.3.4. TOTAL ASSETS TURNOVER RATIO:

Total assets turnover ratio indicates the sales generated per rupee of investment in the total assets. Generally, they are employed to evaluate the efficiency of the firm. These ratios help to view the utilization position of assets to generate the revenue. These ratios are called turnover or activity ratio. It indicates the speed with which assets are being converted to turnover into sales. Total assets turnover ratios, thus involve a relationship between sales and assets. The proper balance between sales and assets generally reflect that assets are managed well.

Total Assets Turnover Ratio is calculated by dividing total sales by total assets.

$$\text{Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

It shows the relationship between sales and total assets. High assets turnover ratio indicates better assets utilization position to manage the require funds. From the financial management point of view, lower assets turnover ratio of the hydropower companies is more risky to them. It means the hydropower company fails to manage the funds in efficient way.

Table 4.11
Total Assets Turnover Ratio

(Rs. In million)

Fiscal Year	Sales			Total Assets			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	0	107.9	126.3	1927.9	1564.2	1448.0	0	6.90	8.72
2060/061	593.5	294.8	185.0	2046.4	1369.0	1507.7	29.00	21.53	12.27
2061/062	692.0	335.5	194.6	2129.3	1283.6	1600.7	32.50	26.14	12.16
2062/063	819.4	375.3	213.4	2084.5	1300.6	1599.0	39.31	28.26	13.35
2063/064	903.5	392.9	219.6	2110.7	1294.8	1575.5	42.81	30.34	13.94
— Mean (X)							28.72	22.75	12.09

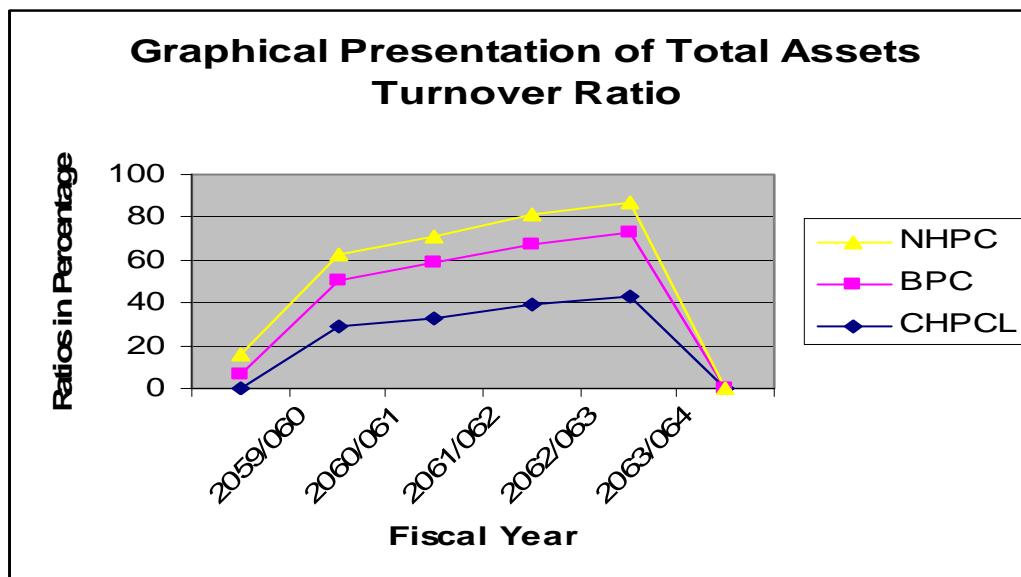
Standard Deviation(s)	16.95	9.48	2.02
Coefficient of Variation(CV)	59.03	41.65	16.74

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059/60 to 2063/064

Table no 4.11 shows the total assets turnover ratios of three hydropower companies are in increasing trends over the five year period. The total assets turnover ratios of CHPCL are 0, 29, 32.50, 39.31 and 42.81 percentage respectively, For BPC the ratio are 6.90, 21.53, 26.14, 28.86 and 30.34 percentage in the respective five year. Similarly, the ratios of NHPC are 8.12, 12.27, 12.16, 13.35 and 13.94 percentages respectively.

Mean, standard deviation and CV for the total assets turnover ratio of CHPCL are 28.72, 16.95 and 59.03%. Mean, standard deviation and CV for the total assets turnover ratio of BPC are 22.75, 9.48 and 41.65% .similarly, mean, standard deviation and CV for the total assets turnover ratio of NHPC are 12.09, 2.02 and 16.74 %. This data shows that the CHOCL has higher percentage of assets turnover ratio.

Figure No : 4.7



The graphical presentation of total assets turnover ratio shows that CHPCL was efficient of managing total assets. CV of NHPC was lower than the CHPCL and BPC, which indicates that the ratios in NHPC were more consistent than that of CHPCL and BPC during the five year research period.

4.2.4. PROFITABILITY RATIO:

Profitability ratio measures the success of the company in earning a net return on sales or on investment. These ratios give the decision about how effectively the company is being managed. It is true that higher the profitability ratio better the financial position and vice versa. In other words, the profitability ratio measures the operating profitability in terms of profit margin return on equity and return on total investment. and reflects the overall efficiency and effectiveness of management. The profitability ratio is need everywhere such as : shareholders, bankers, government , employee etc. The shareholders are interested with their rate of return, employees in the future growth of the company, government need tax for development and bankers in the perspective of the company. A required level of profit is necessary for survival and growth of a firm in a competitive environment.

Profitability ratio is the relationship between net profit and assets. This ratio is also known as profit to assets ratio. It measures the profitability of investment. The profitability of hydropower companies should be evaluated in terms of their investment, in assets and in terms of capital contributed by creditors. A hydropower company should be able to produce adequate profit on each rupee of investment.

In profitability ratio, various ratios can be developed based upon the profit under different circumstances. These different ratios are called profitability ratio. In this study, some ratios are mentioned to support the purpose of study.

4.2.4.1 RETURN ON TOTAL ASSETS (ROA) RATIO:

Return on total assets measures the overall effectiveness of management in generating profit with its available assets. The higher the firms return on assets the better it is doing in operating. This ratio is calculated by:

$$\text{Return on Total Assets} = \frac{\text{Net Profit}}{\text{Total Asset}}$$

Return on total assets ratio is the relationship between net profit and assets. Net profit indicates the profit after deduction on interest and tax. A total asset means the assets that appear in asset side of balance sheet. The increasing ratio shows favorable situation for the hydropower companies. The higher ratio also shows that the hydropower companies could well manage their all over activities.

Table 4.12
Return on Total Assets Ratio

(Rs. In million)

Fiscal Year	Net Profit			Total Assets			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	-	(44.9)	(16.30)	1927.9	1564.2	1448.0	0	(2.87)	(1.13)
2060/061	273.8	235.4	(3.25)	2046.4	1369.0	1507.7	13.38	17.20	(0.22)
2061/062	385.4	197.8	5.93	2129.3	1283.6	1600.7	18.10	15.41	0.37
2062/063	507.8	288.4	16.63	2084.5	1300.6	1599.0	24.36	22.17	1.04
2063/064	667.5	252.8	53.17	2110.7	1294.8	1575.5	31.62	19.52	3.37
— Mean (X)							17.49	14.29	0.69
Standard Deviation(s)							11.94	9.92	1.70
Coefficient of Variation(CV)							68.25	69.45	246.69

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059

In the above table no. 4.13, shows the return on total assets of CHPCL, BPC and NHPC. The return on total assets r ratios of CHPCL are 0, 13.38, 18.10, 24.36 and 31.62 percentage respectively, For BPC the ratio are -2.87, 17.20, 15.41, 22.17 and 19.52 percentage in the respective five year. Similarly, the ratios of NHPC are -1.13,-0.22 , 0.37, 1.04 and 3.37 percentage respectively.

Mean, standard deviation and CV for the return on total assets ratio of CHPCL are 17.19, 11.94 and 68.25%. Mean, standard deviation and CV for the return on total assets ratio

of BPC are 0.69, 1.70 and 246.69% .similarly, mean, standard deviation and CV for return on total assets ratio of NHPC are 12.09, 2.02 and 16.74 %. This data shows that the CHOCL has higher percentage of assets turnover ratio.

The above table shows the return on total assets of CHPCL, BPC and NHPC. The average ratio of CHPCL was higher than that of BPC and NHPC., which implies that CHPC had more efficient operation or optimal utilization of the resources in comparison with same period of BPC and NHPC. Similarly, CV of CHPCL and BPC were less than that of NHPC , which indicates that the variability of the ratio of CHPCL and BPC was more uniform than that of NHPC hydropower company.

BPC was positive ratio in the study period except in the first year whereas the profit of NHPC in the first and second year were negative because loan loss provision and the profit was positive in the third to fifth year. Likewise, profit of CHPCL in the first year was zero because commercial operation had not been started in the fiscal year 059/060.The graphical presentation shows that the Return on Total Assets of all hydropower companies were in increasing trend.

4.2.4.2 RETURN ON SHAREHOLDERS' EQUITY (ROE):

Return on shareholders equity measures the return earned by the shareholders' i.e. owners of the company. To analyze whether the company been able to provide higher return on investment to the owner or not, this ratio is necessary. This ratio is calculated by:

$$\text{Return on Shareholders' Equity} = \frac{\text{Net Profit}}{\text{Shareholders' Equity}}$$

This ratio helps to evaluate the returns on shareholders' investment in the hydropower companies. The higher ratio of return on equity is better for shareholders.

Table 4.13
Return on Shareholders Equity

(Rs. In million)

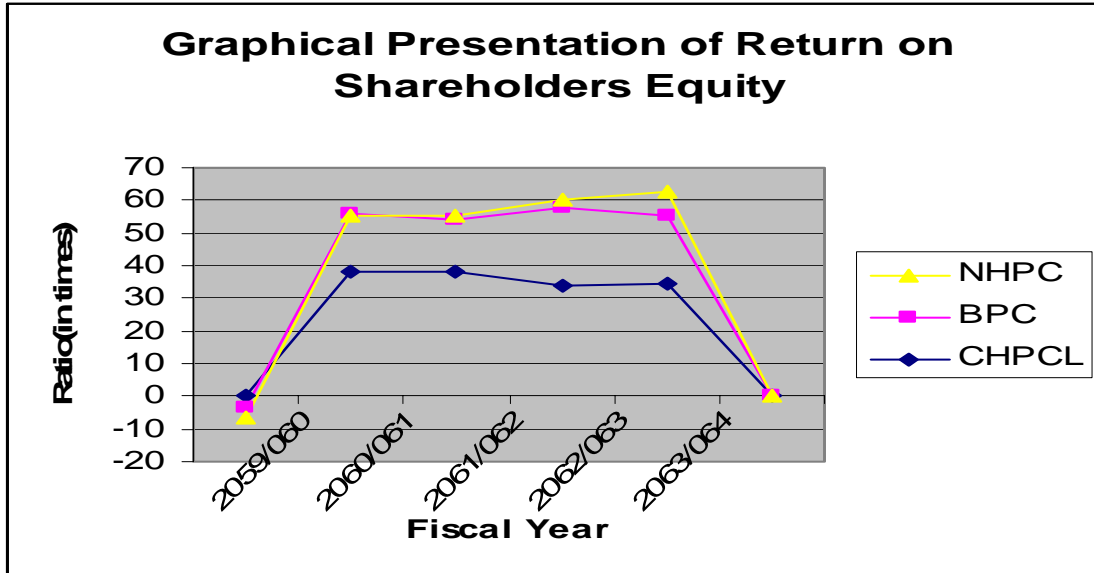
Fiscal Year	Net Profit			Shareholders Equity			Times		
	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	-	(44.9)	(16.30)	477.6	1369.3	488.7	0	(3.28)	(3.34)
2060/061	273.8	235.4	(3.25)	716.80	1345.8	540.5	38.20	17.49	(0.60)
2061/062	385.4	197.8	5.93	1003.80	1254.7	638.1	38.39	15.76	0.93
2062/063	507.8	288.4	16.63	1493.41	1209.9	659.6	34.00	23.84	2.52
2063/064	667.5	252.8	53.17	1942.30	1210.6	707.2	34.37	20.88	7.52
— Mean (X)							28.99	14.94	1.41
Standard Deviation(s)							16.34	10.65	4.04
Coefficient of Variation(CV)							56.35	71.28	287.37

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059

In the above table no. 4.14, shows the return on shareholders' equity of CHPCL, BPC and NHPC. The return on shareholders' equity of CHPCL are 0, 38.20, 38.39, 34.00 and 34.37 percentage respectively, For BPC the ratio are -3.28, 17.49, 15.76, 23.84 and 20.88 percentage in the respective five year. Similarly, the ratios of NHPC are -3.34, -0.60, 0.93, 2.52 and 7.52 percentage respectively.

Mean, standard deviation and CV for the return on shareholders' equity of CHPCL are 28.99, 16.34 and 56.35. Mean, standard deviation and CV for the return on shareholders' equity of BPC are 14.94, 10.65, and 71.28% .similarly, mean, standard deviation and CV for return on shareholders' equity of NHPC are 1.41, 4.04 and 287.37 %. This data shows that the CHPCL has higher percentage of return on shareholders' equity. Similarly, CV of CHPCL was lower.

Figure No : 4.8



4.2.4.3 EARNING PER SHARE (EPS):

Earning Per Share is calculated by dividing net profit after tax by the number of equity shares outstanding. This ratio measures per share earning position of the hydropower companies. The profitability of the company from point view of ordinary shareholder is the earning per share (EPS). Earning Per Share shows the amount of earning attributed to each equity share. EPS is calculated by:

$$\text{Earning Per Share (EPS)} = \frac{\text{Net Profit After Tax}}{\text{Number of Shareholders}}$$

Net profit after tax is obtained by subtracting all expenses and taxes from the sales and other income. If EPS is high market price of the share may be increased in the market and vice versa. The higher EPS shows the better condition of the hydropower companies.

Table 4.14
Earning Per Share (EPS)

(Rs. In million)

Fiscal	Earning After Tax	Number of Shares	EPS(Rs.)
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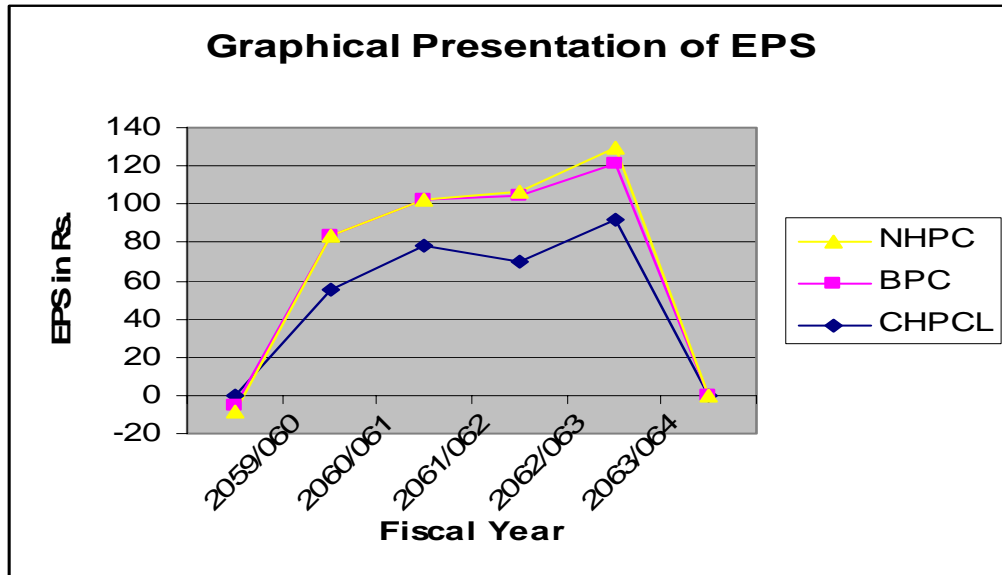
Year	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC	CHPCL	BPC	NHPC
2059/060	-	(44.9)	(16.30)	4775950	8390580	5050000	0	(5.35)	(3.23)
2060/061	273.8	235.4	(3.25)	4921950	8390580	5600000	55.63	28.06	(0.58)
2061/062	385.4	197.8	5.93	4921950	8390580	6516570	78.30	23.57	0.91
2062/063	507.8	288.4	16.63	7293980	8390580	6565360	69.62	34.37	2.53
2063/064	667.5	252.8	53.17	7295660	8390580	6930360	91.49	30.13	7.67
Mean (\bar{X})							59.01	22.16	1.46
Standard Deviation(s)							35.47	15.86	4.07
Coefficient of Variation(CV)							60.12	71.59	278.34

Sources: Annual Reports of CHPCL, BPC and NHPC from FY 2059

In the above table no. 4.15, shows the Earning Per Share of CHPCL, BPC and NHPC. The Earning Per Share of CHPCL are 0, 55.63, 78.30, 69.62 and 91.49 Rupees respectively, For BPC the ratio are -5.35, 28.06, 23.57, 34.37 and 30.13 Rupees in the respective five year. Similarly, the ratios of NHPC are -3.23, -0.58, 0.91, 2.53, and 7.67 Rupees respectively.

Mean, standard deviation and CV for the Earning Per Share of CHPCL are 59.01, 35.47 and 60.12. Mean, standard deviation and CV for the Earning Per Share of BPC are 22.16, 15.86 and 71.59 percentage respectively. Similarly, mean, standard deviation and CV for Earning Per Share of NHPC are 1.46, 4.07 and 278.34 %. The average EPS of CHPCL was higher than that of BPC and NHPC. Likewise, the CV of CHPCL and BPC were lower. This indicates that the EPS of CHPCL and BPC were more consistent than that of NHPC. The EPS of NHPC was highly fluctuating trend.

Figure No : 4.9



4.3. STATISTICAL ANALYSIS:

Statistical analysis is one of the most popular financial tools to judge financial position of hydropower companies. Various financial tools mentioned above were used to evaluate the cash and liquidity position of development banks. Similarly, the relationship between different variables related to study topic were drowning out using statistical tools. The following statistical tools are used in this study for evaluating the performance of selected hydropower companies.

4.3.1. ARITHMETIC MEAN OR MEAN OR AVERAGE:

Arithmetic mean is the most commonly used of all the average. This is due to the simplicity of its calculation and other advantage. It is used to calculate the average value of quantitative data closed end class intervals and when the distribution does not have very small items. It is also used to obtained average value of distribution having closed ended class intervals and having non – extreme items. Since, an average is somewhere within the range of the data, it is also called a measures of central value. Average value is

obtained by adding together all the terms and dividing this total by the number of items.

The formula is given below:

$$\bar{X} = \frac{\sum x}{N}$$

Where,

$$\bar{X} = \text{Arithmetic Mean}$$

$$\sum x = \text{Sum of value of all items.}$$

$$N = \text{Number of terms}$$

4.3.2. STANDARD DEVIATION:

The standard deviation measures the variability of the data. It can be thought of as a rough measure of the average amount by which observation deviate on either side of mean. Standard deviation is useful for judging the representatives of the mean. Standard deviation is denoted by Greek letter (σ i.e. Sigma) The formula for standard deviation is :

$$s = \sqrt{\frac{\sum d^2}{N}}$$

Where,

$$s = \text{Standard Deviation}$$

$$\sum d^2 = \text{Sum of the square of the deviations measured from the arithmetic average,}$$

and,

$$n = \text{no. of observation.}$$

4.3.3. COEFFICIENT OF VARIATION (CV):

Coefficient of Variation is method of measuring risk. It is the standardized measure of risk per unit of return. It is the percentage variance in the mean. It can be thought of as the measure of relative risk. It is one of the relative measures of dispersion that is useful

in comparing the amount of variation in data group in different mean. The higher the coefficient of variation, the greater will be the risk relative to the average.

Coefficient of variation is calculated by:

$$CV = \frac{S}{\bar{X}}$$

Where,

CV = Coefficient of Variation

S = Standard Deviation

—

\bar{X} = Arithmetic Mean

4.3.4. CORRELATION COEFFICIENT (r):

Correlation Coefficient is a statistical tool for measuring the magnitude of linear relationship between two series. Karl Person's correlation coefficient measures the degree of linear association between two variables. Let X and Y are two variables. Karl person's correlation coefficient between x and y is generally denoted by r_{xy} or simply r only. It is also called Product moment correlation coefficient or Simple correlation coefficient. It is defined as follows:

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}}$$

Where,

N = Number of Observation

$\sum x$ = Sum of Observation in Variable X

$\sum Y$ = Sum of Observation in Variable Y

$\sum x^2$ = Sum of Square Observation in Variable X

$\sum Y^2$ = Sum of Square Observation in Variable Y

$\sum x \times Y$ = Sum of the product of Observation in Variable X and Y.

The standard value of Correlation Coefficient (r) lies between -1 and +1, r = 1 implies a perfect correlation between the variables. The variables are said to be perfectly negative correlated if r = -1 and perfectly positive correlated if r = +1, and if the value of r = 0, the variables are said to be not correlated.

4.3.5. PROBABLE ERROR OF CORRELATION COEFFICIENT:

Probable error of the correlation coefficient is a measure of testing the reliability of an observed value of correlation coefficient. It is calculated to find the extent to which correlation coefficient depends upon the condition of random sample. Probable error of correlation coefficient is denoted by PE (r) , which is calculated by:

$$P.E. (r) = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

Where,

$$\frac{1 - r^2}{\sqrt{N}} = \text{Standard Error}$$

Reason of taking 0.6745 is that in a normal distribution, 50% of observation lie in the range $p = \pm 0.6745$.

PE is used to test if an observed value of sample correlation coefficient is significant of any correlation in the population. If $r > 6 PE$, correlation is significant otherwise the correlation is not significant.

4.3.5. LEAST SQUARE LINEAR TREND:

Trend analysis is very useful and commonly used tool to forecast the future event in quantitative term, On the basis of the tendencies in the dependent variable in the past period. The straight line trend implies that irrespective of the seasonal and cyclical as

well as irregular fluctuation, the trend values increase by absolute in arithmetic progression

Mathematically,

$$Y = a + bX$$

Where,

Y = Value of dependent variable

a = Y – intercept

b = Slope of trend line

X = Value of independent variable

Normal equations fitting above equation are:

$$\sum XY = Na + b\sum X$$

$$\sum XY = a\sum X + b\sum X^2$$

$$\text{Since, } \sum X = 0, a = \frac{\sum Y}{N}$$

And

$$b = \frac{\sum XY}{\sum X^2}$$

4.4. MAJOR FINDINGS OF THE STUDY:

From the analysis of primary as well as secondary data collected through structured questionnaire, interview with experts and professional people of related hydropower companies, and different websites, the following major findings of the study have been drawn.

It is observed that Nepal's electricity is expensive. The generation cost was very high and then huge loss in transmission and distribution, which again added to electricity tariff thus Nepalese electricity, is one of the expensive in the region. Due to high tariff of electricity, lower investment in hydropower and political interference it is very difficult to increase the domestic consumption of electricity substantially to the existing customer. The expansion of electricity needed but the current statistics show that approx 85% of the load is domestic load, long transmission and huge distribution cost, which make the

domestic expansion not economically viable to NEA. CHPCL, BPC and NHPC are the largest project of Nepal. So, it is good for Nepal to consider exporting larger blocks of hydropower through some mechanism that aggregates the exportable volume, and to sell this for the economic development for country.

From the study of three selected hydropower, Current ratio of CHPCL, BPC and NHPC were in fluctuating trend throughout the five year study period. The mean ratio of BPC was higher than CHPCL and NHPC, which means that CHPCL and NHPC had more fluctuation in ratios as compared with BPC. Mean ratio shows the highly liquid position of BPC, which shows the hydropower companies did not have proper investment plan. CHPCL and NHPC had lower mean ratio than that of BPC, The hydropower companies may face the problem of working capital if they need to pay current liabilities at demand. Current ratios were also in fluctuating trend of three hydropower companies. All the hydropower companies could not maintain the straight standard of 2:1. However the average ratio of BPC was higher or more satisfactory than that of CHPCL, NHPC and NHPC.

The CV of the three selected hydropower companies were also in fluctuating trend. Hence, CV of CHPCL for quick ratio was greater than that of BPC and NHPL. Current assets ratios were also in fluctuating in CHPCL, BPC and NHPC. Quick ratios of the three hydropower companies were also in fluctuating trend. In above three mentioned hydropower companies could not maintain the conventional standard of 1:1. BPC was greater mean ratio than that of CHPCL and NHPC, which means BPC, is more successful in maintains the liquidity position. The liquidity position shows that the BPC is more consistent than other two hydropower companies.

Debt to assets ratio was in increasing trend for CHPCL and NHPC. Debt to assets ratio remained higher in NHPC than in CHPCL, which relates the greater position of assets in NHPC was financed through the outsider cost – bearing fund. The ratio appeared less fluctuating in NHPL than that of CHPCL.

Mean, standard deviation and CV for the debt to total ratio of CHPC is 45.88, 27.47 and 59.87 percentage. For NHPC it were 60.88, 4.41 and 7.25 percentage . Mean of the ratio came greater in NHPC as compared to CHPCL, which signifies that the former followed more aggressive policy in raising debt capital. From the CV analysis it can be noticed that the ratio of CHPCL varied considerably the study period because there was higher CV in CHPCL than that of NHPC.

Return on shareholder's equity ratio measures the investment of shareholder's return in the hydropower companies. The average ratio of CHPCL of return on shareholders equity was higher than that of BPC and NHPC. Mean, standard deviation and CV for the return on shareholders' equity of CHPCL are 28.99, 16.34 and 56.35. Mean, standard deviation and CV for the return on shareholders' equity of BPC are 14.94, 10.65, and 71.28% .similarly, mean, standard deviation and CV for return on shareholders' equity of NHPC are 1.41, 4.04 and 287.37 %. This data shows that the CHPCL has higher percentage of return on shareholders' equity. Similarly, CV of CHPCL was lower.

Debt to equity ratio was in decreasing trend for CHPCL and NHPC. This shows that the CHPCL and NHPC had used more equity financing than debt financing. This show the interest expenses were low for the both hydropower companies. Debt to equity ratio of both hydropower companies depicted that employment of equity was higher than the debt capital. Capital structure of NHPC was more risky i.e. more levered. But there was no debt capital in BPC and it was fully financed by equity it means BPC was less risky then other hydropower companies.

Earnings per Share of the three hydropower companies are not satisfactory. Mean, standard deviation and CV for the Earning per Share of CHPCL are 59.01, 35.47 and 60.12. Mean, standard deviation and CV for the Earning per Share of BPC are 22.16, 15.86 and 71.59 percentage respectively .similarly, mean, standard deviation and CV for Earning Per Share of NHPC are 1.46, 4.07 and 278.34 %. The average EPS of CHPCL was higher than that of BPC and NHPC. Likewise, the CV of CHPCL and BPC were lower. This indicates that the EPS of CHPCL and BPC were more consistent than that of NHPC. The EPS of NHPC was highly fluctuating trend.

Interest Coverage ratio evaluates the debt serving capacity of the hydropower companies. The higher ratios show that the hydropower company can pay interest easily. The ratios were in increasing trend for CHPCL and NHPC. It shows that CHPCL and NHPC, both hydropower companies are capable to interest on debt. Average interest coverage ratio in CHPCL remained greater than in NHPC, which reveals that interest – paying capacity of CJPCL was considerably better than that of NHPC.

After studying the selected three hydropower companies various drawbacks are effecting in the hydropower sector. It has been learnt from some of the lenders and also from developers that due to the problem of equity arrangement or with bad intension on the developers are that they inflate the cost of the components of the projects in such a way that they will cover the project expenses with the portion of the loan. Sometime they save some money from the debt and use it to some other business for own personal benefit. This culture and some evidences have warned the lenders not to believe the developers on face value. Few developers might have done it, which has created bad impression to the lenders market.

The hydropower industries is in developing stage, there are more opportunities in hydropower sector. In the past, government has developed the hydropower projects on the grant and soft loan. On those project the financing and economics was not the primary concern. These projects were built on the priority of supply electricity to the important markets centers. Now a more than couple of projects are developed for the commercial purpose considering all the costs and benefits. The performance of these projects, if fulfilled the design technical and financial parameter will bring a good message to both developers and lenders. But if the example perform badly then it may bring the bad message to the hydropower companies and its effects will not be reduced in future.

CHAPTER –V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study is undertaken on the basis of data for the period of last five year i.e. 2059/064. The data are taken from different primary and secondary sources. The study has been able to summaries the outcome and finding in the field of A Comparative Study on Financial Analysis of Hydropower Companies in Nepal with special reference to Chilime Hydropower Company Limited (CHPCL). , Butwal Power Company Limited (BPC). And National Hydropower Company Limited (NHPC).The whole study has been carried out summarized below:

5.1. SUMMARY

Nepal is a landlocked country and second wealthy country in water resources in the world. Nepal is large potential for hydropower generation. However, all of this potential is not realizable because hydropower project has to be technically feasible, socio – environmentally acceptable, economically beneficial and financially viable for implementation. After adopting economic liberalization policies by the government, various commercial banks, financial institutions and hydropower companies have been set up within a short period. The basic objective of the liberalization policy was to bring healthy competition in financial sector and attract the investment from private sector. As a result, many hydropower companies, commercial and development banks have been established.

In august 1995, the Arun III project, which dam planners claimed would cover the country's power needs well into the next century, had to be canceled when the World Bank pulled out from dollar one billion scheme for environmental reasons. A surge in energy demand was already creating huge power shortage in the capital city of Nepal i.e. Kathmandu. The government, left with little choice but to explore alternative power projects to meet the demand, gave the go – ahead to a number of projects that were in scale but easier to finance and build. There has been a gradual change in local and global energy markets providing opportunity for financing in hydropower sector. It is now increasing evident that the participation of hydropower sector can lead to better mobilization of resources to meet the ever increasing domestic and regional power

demand. The establishment of few small and medium hydropower plants within the last decade has put the foundation for investment in hydropower sector in Nepal.

Chilime hydropower company limited was established as the first hydropower company from Nepalese own attention, manpower and investment. It has been established under the Company Act, 2063 in 2053 B.S. Chilime hydropower Company Limited has been actively participating to supply the demand of electricity for the block supply of the NEA. Presently its paid up value is Rs.729600,000 Similarly, Butwal Power Company limited was established in the year 1996 under the provision of company Act, 2063. it is a leading hydropower company in Nepal from the private sector. The share capital composition of Butwal Power Company is different from institutions including the employees of the company and general public. Presently its paid up value is Rs.839057,700. Similarly, National hydropower Company Limited is also a stable hydropower company in the field of hydropower. Its contribution in power supply segment is also admirable. The paid up value of National Hydropower Company is Rs. 700 million. These three biggest hydropower companies are participating in the development of hydropower sector in Nepal collecting and mobilizing financial transaction from different institutions, general public and private sectors. In other words, Nepalese hydropower companies would be set up to enhance the financial progress of the nation by meeting daily demand of electricity consumption by domestic user.

The study mainly deals and describes with the financial position of CHPCL, BPC and NHPC the three biggest hydropower projects of Nepal. The study aimed to find out the financial position or liquidity position of selected hydropower companies in relation with primary and statistical data collected by searching websites, expert's interviews and annual report of selected hydropower companies.

Its main objective is to find out the foundation of Investment policy and its appliances position of the selected three hydropower companies and evaluating major significance from findings of the study. It also gives focuses on comparison on three selected hydropower companies i.e. CHPCL, BPC and NHPC in the mean of profit, investment and equity position.

Although the demand for power is raising every year due to centralization and increasing population, but the power generation have not been implemented in such a manner that afford demand of public. The delays experienced in middle Marsyandi, the only public sectors projects presently under operation, is an example of the uncertainties faced even after a project enters the construction phase. Public sector generation projects take considerable preparation time before execution. The process of mobilization of resources for generation and other project is also time consuming and uncertain. Decision for taking up such projects should therefore be made well in advance so that power plants come into operation in a timely fashion as per the system requirements. The identification and implementation of projects involving relatively low investment in the key to provide affordable electricity to the consumer to meet the demand.

5.2. CONCLUSION

In the concluding point the research has been successful to collect the information about the present position, financial status, problems and prospects of hydropower companies in Nepal. However, to run any project management is one of the most important parts of each hydropower company. Proper collection of capital and its utilization is the most sensible and crucial aspect of hydropower company. Lack of adequate capital is often one of the first sign that a hydropower company is in serious financial trouble and should bear loose faith of public upon it and it cannot move ahead for the development of the project. Thus, ensuring adequate capital is a most important task for the financial management of hydropower companies that will always have significant implications for the hydropower companies sustainable progress. After studying the three hydropower company CHPCL, BPC and NHPC following conclusion have been drawn:

BPC was strong liquidity position than that of CHPCL and NHPC, which shows that BPC had more efficient in serving creditors in comparison to CHPCL and NHPC. However, higher liquidity position indicates lower risk and lower risk means lower profit is not good for company day to day operation.

Interest coverage ratio of CHPCL and NHPC were in increasing trend. NHPC had used more debt than equity financing. This showed that interest expenses were high for NHPC. The higher CV ratio of CHPCL showed that this ratio varied considerably.

Total debt to total assets ratios were in decreasing trend for CHPCL and NHPC which showed that both of the hydropower companies employed varied performance of interest-bearing debt for the purpose of hydropower generation to meet the power demand. Similarly, BPC was free from debt capital.

Average return on total assets ratio of CHPCL was higher than that of BPC and NHPC. It implies that the profitability position of NHPC in the study period proved to be weaker in spite of improvement in the third and fourth year period. The ratios were also varied more in NHPC than BPC and CHPCL.

CHPCL and BPC were higher average return on shareholders equity ratio than that of NHPC. Because of negative net profit in the first year and lower net profit in the remaining three years of the study period, NHPC had to search for more alternatives to increase equity.

At the last line of the conclusion, the objectives of the study to evaluate the financial position of the hydropower company is successfully accomplished. The intellectual experts were asked about the current problem of electricity in the country for the investment in the hydropower sector; they responded that the situation might be improved. Besides that problem, government and their employees should be honest to develop the nation, which will automatically win the current problem.

5.3. RECOMMENDATIONS

The primary concern of this study is to search into the present problems of hydropower developer and financial institution. This thesis tries to evaluate the financial analysis of hydropower projects in Nepal with special reference to Chilime Hydropower Company Limited, Butwal Power Company and National Hydropower Company Ltd. Based on the conclusion, some recommendations are presented below:

The liquidity position of both CHPCL and NHPC have very low because both current and quick ratio are below the standard. Both hydropower companies were not able to pay short term liabilities at the time of their creditors demanding such a situation investors are also fear for investing in hydropower. So, both companies should maintain their liquidity position to meet the demand of creditors.

Debt position of the CHPCL was very low but NHPC used average proportion of debt in their capital structure to run the project. So, this indicates that the average financial position of NHPC and sound financial position of CHPCL. But BPC was free of debt capital it was financed by grant in aid expect equity. Therefore, regarding to debt capital ratio there is no critical position of the hydropower companies. But only equity investment is not also good for them. So, BPC should increase their debt.

As the rule of government hydropower policy ,1992 of Nepal shall provide an exemption of income tax to the projects of private sector generating and distributing electricity from the hydroelectric project up to the capacity of 1000 kw. likewise, the government shall provide income tax exemption facility to the hydroelectric projects constructed under to investment of private sector producing more than 1000 kw for a pertiod of fifteen years from the date of its commercial production. So, the hydropower companies are suggested to invest in the new hydropower projects to meet the present crisis of electricity.

NHPC had the lower profitability position than that of CHPCL and BPC. It should improve by investing its overall capital in more returnable assets. So, NHPC can do much to increase the net profit margin. There is also a need for effective production management to control operating cost of BPC.

It is recommended to have an independent center for excellence in hydropower to help developers and lenders. The construction of hydropower projects involves a number of technical expertise and the level of skill required also of high quality. In order to understand the full technical detail both developers and lenders needed technical experts to analyze the information, data and future planning of hydropower generation.

One of the main problem of developers to finance in hydropower sector is the arrangement of the equity portion, as the private hydropower generation in Nepal is in primary stage, therefore, the government should encourage the sector by adding more liberal policy on hydropower sector. In order to established the confidence for the other investors government should also participate as a minor partner in the genuine hydropower developer. This involvement of government will help to attract more entrepreneurs. And the solution of unemployment may also be decreased.

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APPENDIX – 1

Dear Sir / Madam,

I hereby request you to fill up the attached questionnaire provided to you in order to collect the precious views and opinions from your side, which will be helpful for facilitating the research for the partial fulfillment of the requirement of the MBS degree. The researcher topic is “ A COMPARATIVE FINANCIAL ANALYSIS ON HYDROPOWER COMPANIES IN NEPAL”.

The information provided is purely for educational purpose and shall not be disclosed to third parties.

Your kind cooperation will be helpful to complete this research successfully.

Thank You.

Rama Khanal
(Researcher)
Master of Business Studies(MBS)
Nepal Commerce Campus, T.U

APPENDIX – 2

Questionnaire for Hydropower Projects Developers.

Q:1 Which factor do you consider for the hydropower to have good Strength?

- a) Dynamic Change
- b) Power Vision
- c) Strong Mechanism

Q:2) What is the investing pattern of your project?

- a) Debt
- b) Equity
- c) Debt and Equity

Q:3) What is the financial position of your project, in debt/equity ratio?

- a) 50:50
- b) 40:60
- c) 70:30
- d) 80:40

Q:4) From where you are planning to raised capital for your hydropower project?

- a) International Financial Institution (IFIs)
- b) Local Financial Institution (LFIs)

Q:5) What are the problems facing from LFIs ?

- a) Lack of interest (concern)
- b) High interest Rate
- c) Problems of Payback Period
- d) Any Others

Q:6) Should Government take any action on Hydropower Projects?

(Please Mention in bullets below:)

APPENDIX – 1

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I hereby request you to fill up the attached questionnaire provided to you in order to collect the precious views and opinions from your side, which will be helpful for facilitating the research for the partial fulfillment of the requirement of the MBS degree. The researcher topic is “ A COMPARATIVE FINANCIAL ANALYSIS ON HYDROPOWER COMPANIES IN NEPAL”.

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Rama Khanal
(Researcher)
Master of Business Studies(MBS)
Nepal Commerce Campus, T.U

APPENDIX – II

Questionnaire for Hydropower Projects Developers.

Q:1 Which factor do you consider for the hydropower to have good Strength?

- a) Dynamic Change
- b) Power Vision
- c) Strong Mechanism

Q:2) What is the investing pattern of your project?

- a) Debt
- b) Equity
- c) Debt and Equity

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- b) High interest Rate
- c) Problems of Payback Period
- d) Any Others

Q:6) Should Government take any action on Hydropower Projects?

(Please Mention in bullets below:)

.....

APPENDIX – III

Questionnaire for Hydropower Local Financial Institution

Q:1 Which are the industries/companies you are interested to invest currently?

1. Manufacturing Company
2. Construction Company
3. Real State
4. Other if any.....

Q:2 What should be done by hydropower projects in order to attract fund from the local financial institution? Please mention serially.

- i)
- ii)
- iii)

Q:3) Are you interested investing on hydropower projects?

- i) Yes
- ii) No

Q:4) Do you feel that IPP's are able to maintain the desired / maximum beneficial investment policy?

- i) Yes
- ii) No
- iii) In between

APPENDIX - IV

CHILIME HYDROPOWER COMPANY LIMITED

Profit and Loss Account for the given Fiscal Years

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/061*	2059/60**
Sale of Electricity	903,541	819,415	692,026	593,536	-
Less : Cost of Sales	54,089	45,437	33,379	30,038	-
GROSS PROFIT	849,452	773,978	658,647	563,498	-
Other Income	715	2,579	340	307	-
Professional Expenses	-	-	-	-	-
Distribution Expenses	-	-	-	-	-
Administrative Expenses	(33,879)	(84,415)	(42,790)	(35,016)	-
PROFIT FROM OPERATION	816,288	692,142	616,197	528,789	-
Interest Expenses	(45,025)	(81,563)	(127,140)	(162,695)	-
Depreciation Expenses	(103,786)	(102,820)	(103,614)	(92,999)	-
Income from Sale of Assets	-	-	(6)	730	-
INCOME BEFORE TAX	667,477	507,759	385,437	273,825	-
INCOME TAX	-	-	-	-	-
NET PROFIT AFTER TAX	667,477	507,759	385,437	273,825	-

*Profit and loss of 2060 Bhadra 8 to 2061 Ashadh end.

** There were no income and expenses occurred in the initial stage of the company.

APPENDIX - V

BUTWAL POWER COMPANY LIMITED

Profit and Loss Account for the given Fiscal Years

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/061	2059/60
OPERATING INCOME					
Electricity Sale to NEA	334,166	318,483	286,795	249,530	67,954
Electricity Sale to Consumer	45,603	39,936	36,339	33,637	28,410
Electricity Service	3,634	5,353	3,529	3,479	3,847
Consultancy Service	9,535	11,499	8,831	8,212	7,768
Total Operating Income	392,938	375,271	335,494	294,858	107,979
OPERATING EXPENSES					
Power Plant Expenses	74,565	57,727	59,600	47,369	43,703
Distribution Expenses	33,303	31,125	30,296	27,170	27,170
Consultancy Service	8,775	13,692	14,903	10,946	14,984
Total Operating Expenses	116,643	102,544	104,799	85,485	85,857
GROSS PROFIT	276,295	272,727	230,695	209,373	22,122
Interest Income	15365	13,639	8,455	4,950	5,087
Other Income	1,462	2,449	1,655	1,832	747
Administrative Expenses	37,644	36,438	41,201	38,371	25,066
INCOME FROM OPERATION	255,475	252,377	199,604	177,784	2,890
OTHER EXPENSES					
Depreciation	51,924	49,959	47,413	46,130	42,093
Foreign Currency Exchange loss	25,740	-	10,222	2,621	11,181
Provision of Loss in Investment	9,479	-	-	-	-
Loss of Assets	-	6,090	-	376	73
KHP BACK End, Force Majeure &	-	-	-	100,075	-
Interest on loan	5,266	-	-	-	-
Total Other Expenses	92,409	56,049	57,635	149,202	53,347
INCOME FROM OTHER SOURCES					
Depreciation Being Revenue Portion of Grant Aid	6,964	6,833	6,536	6,183	5,397
Dividend Received	97,982	88,036	40,005	131,677	-
Foreign Currency Exchange Income	-	7,482	-	-	-
Gain of Sale of Assets & Scrap Material	-	-	371	1,378	115
Financial Support from NORAD	370	-	13,418	-	-
KHP-1, Preparation Fee in Share	-	-	-	92,753	-
Income in Share from Khudi HP Ltd.	-	-	-	600	-
Total Income From Other Sources	105,316	102,351	60,330	232,591	5,512
PROFIT (LOSS) BEFORE BONUS AND TAX	268,385	298,679	202,299	261,173	(44,945)
Provision for Employees' Bonus	5,926	6,791	4,046	8,933	-
Provision for Corporate Tax	9,619	3,469	492	16,822	-
NET PROFIT (LOSS) BEFORE APPROPRIATION	252,840	288,419	197,761	235,418	(44,945)

APPENDIX - VI

NATIONAL HYDROPOWER COMPANY LIMITED

Profit and Loss Account for the given Fiscal Years

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/61	2059/60
Sale of Electricity	219,564	213,369	194,594	184,986	126,312
Less : Direct Expenses	29,472	25,377	21,626	22,360	16,313
GROSS PROFIT	190,092	187,992	172,968	162,626	109,999
Other Income	327	293	4,878	1,446	303
Administrative & Cost of Sales	4,942	4,620	4,846	5,607	3,065
INCOME FROM OPERATION	185,477	183,665	173,000	158,465	107,237
Other Income					
Foreign Exchange Gain	12,095	721	-	-	-
Other Expenses					
Interest Expenses	69,989	44,646	42,850	41,737	34,090
Depreciation Expenses	96,793	115,268	116,807	119,980	89,398
Defferred Expenses Written Off	7,519	7,502	7,409	-	-
PROFIT FROM OPERATION	23,271	16,970	5,934	(3,252)	(16,251)
Adjustment of Prior Years' Expenses					
Miscellaneous Income	30,982	-	-	-	-
Provision for Bonus	1,085	339	-	-	-
INCOME BEFORE TAX	53,168	16,631	5,934	(3,252)	(16,251)
INCOME TAX	-	-	-	-	-
NET PROFIT AFTER TAX	53,168	16,631	5,934	(3,252)	(16,251)

APPENDIX - VII

**CHILIME HYDROPOWER COMPANY LIMITED
BALANCE SHEET**

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/061	2059/60
SOURCES OF FUND					
1. Shareholders' Equity					
Share capital	729,566	729,398	492,195	492,195	477,595
Reserve and Surplus	1,212,680	764,073	511,603	224,606	-
Total Shareholders' Equity	1,942,246	1,493,471	1,003,798	716,801	477,595
2. Secured Loan	168,500	591,000	1,125,469	1,329,567	1,450,339
TOTAL SOURCES OF FUNDS	2,110,746	2,084,471	2,129,267	2,046,368	1,927,934
APPLICATION OF FUND					
1.Fixed Assets	2,114,371	2,189,252	2,246,082	2,341,713	43,343
2. Capital Work in Progress	-	-	7,711	2,572	1,658,069
3.New Project	19,563	10,705	4,731	1,780	-
4.Investment	-	-	-	-	-
5. Current Assets					
Stocks	12,094	10,296	9,602	11,122	8,845
Debtors & A/C Receivable	183,961	119,793	112,296	104,439	-
Cash in hand and at Bank	34,228	64,248	6,949	28,887	28,897
Prepaid, Advance and Deposit Paid	11,519	12,493	15,461	8,372	467,371
(A)Total Current Assets	241,802	206,830	144,308	152,820	505,113
Less: Current Liabilities					
Short term Loan	-	-	229,512	255,880	253,857
Creditors & A/C Payable	32,821	60,426	40,593	213,829	24,734
Provision	236,039	267,050	58,031	55,374	-
(B)Total Current Liabilities	268,860	327,476	328,136	525,083	278,591
Net Current Asset (A-B)	(27,058)	(120,646)	(183,828)	(372,263)	226,522
6.Deferred Revenue Expenses	3,870	5,160	54,571	72,566	-
TOTAL APPLICATION OF FUND	2,110,746	2,084,471	2,129,267	2,046,368	1,927,934

APPENDIX - VIII

**BUTWAL POWER COMPANY LIMITED
BALANCE SHEET**

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/061	2059/60
I.SOURCES OF FUND					
1. Shareholder's Fund					
Share capital	839,058	839,058	839,058	839,058	839,058
Reserve and Surplus	371,505	370,831	334,185	430,046	530,252
Total Shareholders' Equity	1,210,563	1,209,889	1,173,243	1,269,104	1,369,310
2. Funds					
Other Fund	-	-	28,912	23,259	119,272
Grant Aid in Reserve	84,300	90,679	81,427	76,680	75,582
TOTAL SOURCES OF FUND	1,294,863	1,300,568	1,283,582	1,369,043	1,564,164
II. APPLICATION OF FUND					
1.Fixed Assets					
Gross Block	1,279,745	1,228,492	1,153,021	1,119,578	1,110,304
Less: Depreciation	535,852	484,888	439,004	392,239	346,821
Net Block	743,893	743,604	714,017	727,339	763,483
2.Capital Work In Progress	1,110	18,576	318	5,277	890
3.Investment in Share	465,705	434,481	381,505	356,906	347,906
4.Wilmington Trust for HPL equity support					189,742
5.Current Assets					
Stocks	58,896	57,623	48,038	41,766	43,985
Debtors & A/C Receivable	58,919	35,513	44,279	31,309	36,223
Cash in hand and at Bank	457,035	364,373	172,240	324,349	120,645
Current Work in Progress	23,258	19,394	9,477	8,163	6,898
Advance and Deposit Paid	72,567	66,515	61,548	76,246	313,235
(A)Total Current Assets	670,675	543,418	335,582	481,833	520,986
6.Less: Current Liabilities					
Bank Overdraft	89,946	-	-	-	-
Creditors & A/C Payable	441,780	432,012	149,265	184,012	14,116
Advance and Deposit Received	30,858	1,607	1,854	384	247,183
Provisions	24,824	10,261	4,538	25,755	-
(B)Total Current Liabilities	587,408	443,880	155,657	210,151	261,299
Net Current Assets (A -B)	83,267	99,538	179,925	271,682	259,687
7.Deffered Revenue Expenditure	888	4,369	7,817	7,839	2,456
TOTAL APPLICATION OF FUND	1,294,863	1,300,568	1,283,582	1,369,043	1,564,164

APPENDIX - IX

**NATIONAL HYDROPOWER COMPANY LIMITED
BALANCE SHEET**

(Rs. In 000)

Particulars	2063/64	2062/63	2061/62	2060/61	2059/60
SOURCES OF FUND					
1. Shareholders' Equity					
Share capital	693,036	656,536	651,657	560,000	505,000
Reserve and Surplus	14,230	3,061	(13,570)	(19,504)	(16,251)
Total Shareholders' Equity	707,266	659,597	638,087	540,496	488,749
2. Secured Loan	868,263	939,358	962,650	967,165	959,254
TOTAL SOURCES OF FUNDS	1,575,529	1,598,955	1,600,737	1,507,661	1,448,003
APPLICATION OF FUND					
1.Fixed Assets					
Gross Block	1,652,710	233,504	233,342	231,167	230,649
Less : Depreciation	235,409	57,047	42,395	27,494	13,486
Net Block	1,417,301	176,457	190,947	203,673	217,163
2. Capital Work in Progress	-	325,965	325,965	325,965	325,694
3. Investment in Shares	10,041	10,041	10,041	10,041	10,050
4.Advance for Capital Work	68,666	1,066,218	966,945	932,913	896,097
5. Current Assets					
Stocks	2,196	157	152	75	390
Debtors &A/C Receivable	21,629	23,773	15,724	22,344	20,786
Cash in hand and at Bank	355	14,655	12,542	19,147	37,944
Prepaid, Advance and Deposit Paid	173,967	118,953	172,979	147,655	121,653
(A)Total Current Assets	198,147	157,583	201,397	189,221	180,773
Less: Current Liabilities					
Account Payable	218,050	120,462	110,612	197,229	235,931
Interest Payable	(10,623)	5,614	9,297	13,085	29,733
Provision for Depreciation	-	108,372	78,380	50,430	22,702
Provision for Bonus	1,424	339	-	-	-
(B)Total Current Liabilities	208,851	234,787	198,289	260,744	288,366
Net Current Asset (A-B)	(10,704)	(77,249)	3,108	(71,523)	(107,593)
6.Deferred Revenue Expenses	90,225	97,523	103,731	106,592	106,592
TOTAL APPLICATION OF FUND	1,575,529	1,598,955	1,600,737	1,507,661	1,448,003